

PYGMAEOPREMNA ANGUSTIFLORA (H. J. Lam) Moldenke, comb. nov.

Premna angustiflora H. J. Lam, Verbenac. Malay. Arch. 134--135. 1919.

MATERIALS TOWARD A MONOGRAPH OF THE GENUS CITHAREXYLUM. V

Harold N. Moldenke

CITHAREXYLUM LANKESTERI Moldenke

Additional literature: Brizicky, Stern, & Chambers, Trop. Woods 109: 78. 1958.

Calyx puberulent, the rim 5-apiculate, the apiculations more or less recurved; corolla hypocrateriform, its tube about 3.6 mm. long, about 1.8 mm. wide at the base, ampliate to 2.8 mm. at the apex, glabrous externally, densely tomentose in the throat within, the limb 5-parted, the lobes variable in size, subrotund-elliptic, about 2.8 mm. long and 2.6 mm. wide, rounded at the apex, pubescent; fertile stamens 4, subequal, not distinctly didynamous, inserted about 1 mm. below the mouth of the corolla-tube, equaling the corolla-tube; filaments about 0.7 mm. long; anthers oblong, about 1 mm. long and 0.5 mm. wide; staminode filiform, about 1 mm. long; pistil included; style about 1.5 mm. long, glabrous; stigma very shortly 2-lobed, the lobes about 0.3 mm. long; ovary obovate, about 1.5 mm. long, about 1.5 mm. wide at the apex, conspicuously 2-lobed and 2-sulcate, apparently 2-celled (or imperfectly 4-celled?); fruiting-calyx persistent on old rachids; fruit subglobose, fleshy, slightly flattened laterally, bright-yellow, borne in pendent racemes.

The type of this species was collected by Charles Herbert Lankester (no. 243) -- in whose honor it is named -- at Paso Ancho, at an altitude of 5500 feet, on Mount Irazú, in San José or Cartago, Costa Rica, in July, 1919, and is deposited in the herbarium of the Royal Botanic Gardens at Kew. It has been confused with C. rugendasii Cham. [= C. mocinni D. Don], but its stellate-tomentose cinereous pubescence and pubescent corollas distinguish it from that species at once. It was found by Tucker on a bank above a stream on the north-facing side of a canyon, and it has been collected at altitudes of 1700 to 2150 meters, fruiting in June. It is said to be fairly common in occurrence at an altitude of 6300 feet on the slope of Volcán Barú near the town of Cerro Punto, Panama. In all, 7 herbarium specimens, including the type, and 4 mounted photographs have been examined.

Citations: EL SALVADOR: Chalatenango: Tucker 1049 (N). COSTA RICA: Alajuela: Ørsted 11192 (Cp). Cartago or San José: Lankester 243 (B--photo of type, F--532255--isotype, K--type, K--isotype, N--isotype, N--photo of type, S--photo of type, Z--photo of type). PANAMA: Chiriquí: Stern & Chambers 98 (Z).

CITHAREXYLUM LAURIFOLIUM Hayek in Engl., Bot. Jahrb. 42: 170 [as "Citharexylon"]. 1908; Prain, Ind. Kew. Suppl. 4: 49. 1913.

Literature: Hayek in Engl., Bot. Jahrb. 42: 170. 1908; Prain, Ind. Kew. Suppl. 4: 49. 1913; Moldenke, Geogr. Distrib. Avicenn. 23 & 28. 1939; Moldenke, Prelim. Alph. List Invalid Names 15. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 34, 40, & 88. 1942; Moldenke, Alph. List Invalid Names 13. 1942; Moldenke, Alph. List Cit. 2: 328 & 447 (1948), 3: 690 & 705 (1949), and 4: 1067, 1112, & 1113. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 71, 96, & 179. 1949.

Shrub, about 1 m. tall, or tree; branches stout, stiff, woody, more or less tetragonal, gray, glabrous, with flaky bark; branchlets and twigs rather stout, stiff, light-brownish, glabrous, lenticellate, often many-ridged (and irregularly so); nodes annulate; principal internodes abbreviated, 0.5--4.8 cm. long; leaf-scars borne on stout, corky, ascending sterigmata 3--4 mm. long; leaves decussate-opposite, rather numerous on the branchlets and twigs only; petioles stout, 5--10 mm. long, glabrous, submargined, often nigrescent in drying; leaf-blades subcoriaceous, bright-green on both surfaces or slightly darker beneath, lanceolate-oblong or elliptic-oblong, 5.5--13 cm. long, 2.3--5.6 cm. wide, sharply acute at the apex, entire or minutely mucronulate-serrate above the middle, acute or cuneate at the base, apparently non-glanduliferous, glabrous and shiny on both surfaces; midrib slender, sharply prominent above, prominent beneath; secondaries slender, 4--6 pairs, arcuate-ascending, sometimes not very much arcuate, anastomosing near the margins; vein and veinlet reticulation slender, abundant, prominent on both surfaces; racemes terminal, simple, 6.5--23 cm. long, about 1.5 cm. wide, loosely many-flowered, the shorter ones often more densely-flowered, erect; peduncles stout, short, 7--22 mm. long, tetragonal, light-brown and very shiny, glabrous; rachis extremely stout, more or less tetragonal and many-ridged with often sharp and irregular ribs, light-brown, very shiny, glabrous; pedicels obsolete, but the flowers borne on short, stout, prominent sterigmata to which the rachis-ribs run; bracts and bractlets absent; prophylla not seen, apparently caducous; corolla greenish-white; fruiting-calyx very incrassate and indurated, coriaceous, cupuliform or campanulate, to 6 mm. long and 7 mm. wide, glabrous, shiny, its rim deeply lobed with 5 irregular lobes, or often 2-lipped almost to the base; fruit oblong or ovate, to 8 mm. long and 5 mm. wide, fleshy, glabrous, black in drying.

The type of this species was collected by August Weberbauer (no. 873) in shrubbery near a stream between Sandia and Cuyocuyo, at an altitude of between 2500 and 2600 meters, Puno, Peru, on May 1, 1902, and is deposited in the herbarium of the Botanisches Museum at Berlin. The flowers are often loosely disposed on the elongated rachis, especially on fruiting specimens; a considerable space often intervening between them. They are very irregularly disposed around the rachis or may simulate a close spiral. A ridge leads to each one, producing an irregularly many-ribbed rachis. This irregular arrangement of the flowers on the rachis

is true of the entire genus, but it is less obvious when the racemes are more densely-flowered. The very stout and stiff rachis renders this species unmistakable, especially when taken in conjunction with its lauriform leaf-blades and sometimes mucronulate serrate margins. Normal pedicels are consistently absent in both flowering and fruiting specimens.

The species is said by Hayek to be closely related to C. caudatum L., but I feel, rather, that its relationship is with C. reticulatum H.B.K. of the same general area; in fact, it may well be conspecific with the latter. Brooke found it in a damp forest at a small gold mine in a narrow wooded valley, in dense forest and grass formation containing quantities of tree lupines, ferns, Begonia larkei, and tuberous Fuchsia species. It has been collected in flower in June and in fruit in May, at altitudes of 2500 to 3665 meters. In all, 22 herbarium specimens, including the type, and 9 mounted photographs have been examined.

Citations: PERU: Junín: Weberbauer 6604 (F--629043, G, N, W--1497168). Puno: Weberbauer 873 [Macbride photos 17594] (B--type, F--663023--photo of type, K--photo of type, Kr--photo of type, N--isotype, N--photo of type, N--photo of type, S--photo of type, Z--photo of type). BOLIVIA: La Paz: W. M. A. Brooke 6485 (N); Mandon 531 (Bm, Cb, Cb, G, K, N, N, N--photo, P, P, P, S, V, V--166967, V--166968, X, Z--photo).

CITHAREXYLUM LIGUSTRINUM Van Houtte, Cat. 205V: 32, nom. nud.

[as "Citharexylon"]. 1883; Dippel, Hand. Laubholz. 53. 1889.

Synonymy: Ligustrum spicatum Jacques, Rev. Hort. 339. 1863 [not L. spicatum Hort., 1877]. Ligustrum multiflorum Hort. ex Jacques, Rev. Hort. 339, in syn. 1863. Ligustrum amurense Hort. ex Decaisne, Fl. des Serres 22: 11, in syn. 1877 [not L. amurense Carr., 1861]. Lippia ligustrifolia G. Thuret ex Decaisne, Fl. des Serres 22: 11, hyponym. 1877. Lippia ligustrina G. Thuret ex Decaisne, Nouv. Arch. Mus. Paris, sér. 2, 2: 38, hyponym. 1879 [not L. ligustrina (Lag.) Britton, 1890, nor Lag., 1939, nor Kuntze, 1941, nor Nutt., 1942]. Baillonia spicata (Jacques) Baill., Bull. Soc. Linn. Paris 2: 880. 1890. Citharexylon pringlei Greenm., Proc. Amer. Acad. 41: 243--244. 1905. Citharexylon pringlei Greenm. apud Prain, Ind. Kew. Suppl. 3: 43. 1908. Citharexylon spicatum (Jacques) Sprague, Kew Bull. 1924: 146. 1924 [not C. spicatum Ryan, 1940, nor Citharexylon spicatum Rusby, 1900]. Citharexylon bessonianum Tod. ex Sprague, Kew Bull. 1924: 145--146, in syn. 1924. Lippia japonica Hort. ex Sprague, Kew Bull. 1924: 145, in syn. 1924. Citharexylon ligustrinum Thuret ex Moldenke, Prelim. Alph. List Invalid Names 16, in syn. 1940. Baillonia spicata Baill. ex Moldenke, Alph. List Invalid Names Suppl. 1: 2, in syn. 1947.

Literature: Jacques, Rev. Hort. 339. 1863; Decaisne, Fl. des Serres 22: 11. 1877; Decaisne, Nouv. Arch. Mus. Paris, sér. 2, 2:

38. 1879; Dippel, Handb. Laubholz. 1: 53. 1889; Baill., Bull. Soc. Linn. Paris 2: 880. 1890; Jacks., Ind. Kew. 2: 80, 81, & 95. 1894; Durand & Jacks., Ind. Kew. Suppl. 1: 50. 1901; Greenm., Proc. Amer. Acad. 41: 243--244. 1905; Prain, Ind. Kew. Suppl. 3: 43. 1908; Sprague, Kew Bull. 1924: 145--146. 1924; Hill, Ind. Kew. Suppl. 7: 50. 1929; Moldenke, Geogr. Distrib. Avicenn. 13 & 36. 1939; Moldenke, Prelim. Alph. List Invalid Names 6, 15, 16, 30, & 31. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16, 71, & 88. 1942; Moldenke, Alph. List Invalid Names 6, 13--15, 29, & 31. 1942; Paray, Bol. Soc. Bot. Mex. 4: 12. 1946; Moldenke, Alph. List Cit. 1: 52, 153, 217, 272, & 306 (1946) and 2: 419, 424, 437, 447, 449, 562, 564, & 565. 1948; H. N. & A. L. Moldenke, Pl. Life 2: 50 & 77. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29, 157, & 179. 1949; Moldenke, Alph. List Cit. 3: 713, 763, 764, 830, 831, 848, 873, & 895 (1949) and 4: 979, 998, 1028, & 1031. 1949.

Evergreen shrub or tree, to 5 m. tall; bark grayish or blackish-brown; old stems very rugose, the young ones smooth and very glabrous; branches and chanchlets slender, gray or brownish, lenticellate, obtusely or acutely tetragonal, glabrate, often roughened by the elevated lenticels; twigs very slender, numerous, brown, glabrous and very smooth; nodes somewhat flattened, annulate; principal internodes 1--5 cm. long; leaf-scars borne on erect or ascending sterigmata 1.5--4.5 mm. long, often very conspicuous; leaves decussate-opposite (or subopposite on young shoots); petioles slender, 2--5 mm. long, glabrous; leaf-blades firmly chartaceous, bright- or dark-green and very shiny on both surfaces or paler and glandular-punctate beneath with large circular glands scattered over the whole lamina, very glossy above, oblong or oblong-elliptic to elliptic-lanceolate, lanceolate, or ovate-lanceolate, often falcate and conduplicate in pressing, 2.5--8 cm. long, 1--3 cm. wide, acute or subacuminate to merely obtuse or short-acuminate and obtuse at the apex, entire or denticulate to sparingly subdentate or serrate with acute teeth above the middle, acute or cuneately attenuate at the base, not basally glanduliferous, completely glabrous on both surfaces; midrib slender, broad, flattened, not very prominent on either surface; secondaries slender, numerous, close, 5--10 pairs, not at all prominent on either surface, rather straight, arcuate and anastomosing at their apex near the margins; veins and veinlets obscure or even indiscernible; racemes terminal and terminating short axillary twigs, arcuate-recurved or nutant, numerous, 4--19 cm. long, 1--1.5 cm. wide, simple, densely many-flowered; peduncles slender, 1--2.2 cm. long, glabrous; rachis very slender or stoutish, glabrate; pedicels filiform, 1--2 mm. long, glabrate; bracts and bractlets absent; prophylla subulate or setaceous, 1--3 mm. long, glabrous; flowers more or less secund; calyx cupuliform, about 3 mm. long, 5-angled in cross-section, brownish or often purplish, slightly pubescent about the orifice on the inner surface, the rim sinuately 5-denticulate or subentire; corolla varying from white to pale-violet or lavender or bicolored, tubular-infundib-

ular, about 4 mm. long, externally glabrous, densely pubescent or fimbriate in the throat, its tube yellowish or white, slightly surpassing the calyx, the limb 5-parted, 4--6 mm. wide, the lobes usually deep-purple or magenta to pale rose-violet, subrotund, scarcely over 1 mm. long and wide, spreading, slightly pubescent on the inner (upper) surface; fruiting-calyx and fruit not known.

The type of this interesting species has not been available to me for examination, but there seems to be no doubt at all that the various names given in its synonymy belong here. C. pringlei was based by Greenman on a collection made by Cyrus Guernsey Pringle (no. 8932) at Barranca, altitude 5000 feet, below the Trinidad Iron Works, Hidalgo, Mexico, on July 13, 1904, and is deposited in the Gray Herbarium of Harvard University. Dippel states that the binomial, C. ligustrinum, was proposed by Van Houtte in his "Catalogue for 1887", but a search through his catalogues no. 222, 223, 225, and 226, issued in 1887 and 1888, by Brenda E. Newton, Reference Librarian at the Massachusetts Horticultural Society, has failed to bring to light any mention of this name there.

The species has had a terrifically involved nomenclatural history, reviewed in part by Sprague in the reference cited above. It has been in cultivation for several generations in Europe under various names in the genera Ligustrum (Oleaceae), Lippia, Ballonia, and Citharexylum. Its earliest name appears to be Ligustrum spicatum, but the epithet "spicatum", is unavailable because it was used by Rusby in 1900 for an entirely different plant. In gardens the plant has much the appearance of a privet, and so the specific name here adopted for the species is singularly appropriate. Its original home was in doubt for a long time; W. W. Saunders in 1869 said it came "from the Himalayas"; in the Cambridge Botanic Garden, in 1903, it was thought to have come from Japan. Others have ascribed it to the Amur region, while the Index Kewensis Supplement 1 gives "Chili ?" as the original habitat. Jacques, who proposed the name Ligustrum spicatum, seems to be the only one who had the source of the material correct. He states that his nephew, M. Verdier, had obtained the seeds from Messrs. Vilmorin, who had, in turn, received them from Mexico.

The leaf-blades are extremely glossy above, often appearing as though varnished. Naudin's comment: "frutex...intense virens" is very true. Their privet-like appearance renders the species unmistakable in the genus. They are firm and completely glabrous and smooth, with the venation quite obscure. The Strauss s.n. at Berlin and one sheet of Herb. Mus. Paris s.n. at Paris have most of the leaves plainly dentate above the middle. Most of the authors who have described the plant also make mention of the leaves being occasionally dentate, so this seems to be a regular occurrence. Sprague says that as grown in England the plant is a comparatively small shrub which is usually not hardy unless it is grown in the protection of a wall. It appears to be widely culti-

vated in botanical gardens and on fine estates in Europe, usually under the name of C. bessonianum. It has been collected in anthesis in April and from June through September. Dr. M. T. Masters, in a letter to Hemsley, describes the plant as "an old garden plant".

In its native haunts it grows in thickets and barrancas, at altitudes of 1600 to 2000 meters. It has been confused in herbaria with C. caudatum L. Greenman points out that it is actually related to C. lucidum Schlecht. & Cham., but it is even more closely related and similar to C. fulgidum Moldenke, which may actually be conspecific.

In all, 61 herbarium specimens, including the types of most of the names involved, and 13 mounted photographs have been examined.

Citations: MEXICO: Hidalgo: H. E. Moore 5338 (N); Pringle 8932 (A, B, B--photo, Bm, Ca--139933, Cb, Cb, Cm, Cp, D--522687, E--119058, Ed, Ed, Ed, F--178605, G, Gg--155408, It, K, K--photo, L, Le, Me, Me, Me, Mu--4001, N, N, N--photo, Na--25812, Ol, P, Po--63795, S, S--photo, V--4739, Vt, W--461413, W--1159323, X, Z--photo), 15608 (G, Mi, S, Vt, W--1586656). Puebla: Aguirre & Reko 154 (N); K. Reiche 513 (Mu), 712 (Mu); A. J. Sharp 441230 (N). Sinaloa: Rose, Standley, & Rose 14785 (E--894705). CULTIVATED: England: Herb. Bot. Gard. Cambridge s.n. [H/149/1924] (K); Herb. Hort. Cantab. s.n. [25 July 1903] (K); Masters s.n. [Sept. 16, 1895] (K); Saunders s.n. [Cult. Torquay] (K, N--photo, Z--photo). France: Decaisne 5 (P); Gadecseau 5694 (Bm); Herb. Hort. Huber 782 (M), B.131 (M); Herb. Mus. Paris s.n. [Hort. Bot. Parisiensis 1875] (P), s.n. (P, P); Naudin s.n. [Villa Thuret, 18 juin 1889] (A, N--photo, Z--photo). Germany: Strauss s.n. [Hort. Bot. Dahlem] (B, N--photo, Z--photo). Italy: Todaro s.n. [h. Bot. Palermo, Aug. 6, 1878] (K, N--photo, Z--photo).

CITHAREXYLUM LONGIFLORUM Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (3): 207--208. 1863.

Synonymy: Citharexylum longiflorum Turcz. ex Alain in León & Alain, Fl. Cuba 4: 301, sphalm. 1957.

Literature: Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (3): 207--208. 1863; Jacks., Ind. Kew. 1: 549. 1893; O. E. Schulz in Urb., Symb. Antill. 6: 68--69. 1909; Moldenke, Geogr. Distrib. Avicenn. 5. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 24 & 88 (1942) and [ed. 2], 43 & 179. 1949; Alain in León & Alain, Fl. Cuba 4: 299 & 301. 1957.

Stems tetragonal, tuberculate, glabrous or lightly puberulent toward the apex; leaves opposite or sometimes approximate; petioles short; leaf-blades lanceolate, abruptly short-acuminate at the apex, entire and revolute-margined, somewhat attenuate at the base, green and glabrous above, paler and lightly puberulent along the veins beneath; inflorescence paniculate, terminal, subequaling the leaves; flowers pedicellate, nutant; calyx campanulate, nigrescent at the base, hirtellous, its rim very shortly 5-dentate; corolla tubular-infundibular, externally puberulent,

glabrous within, its tube 4--5 times as long as the calyx; stamens inserted in the lower part of the corolla-tube, in a whorl, in two unequal pairs; filaments dilated at the base, twice as long as the anthers; anthers elliptic, dorsifixed, included; style filiform, as long as the stamens, not thickened at the apex.

The type of this little-known species was collected by Ramón de la Sagra (no. 50) somewhere in Cuba. The species is known thus far only from the type collection, and no material of it has been available to me for examination, nor was any seen by Schulz, who monographed the West Indian members of the genus in 1909, nor by Alain, who wrote up the genus in the latest Cuban flora. Turczaninow notes that the length of its corollas and filaments causes it to differ from all other members of the genus known to him. I suspect that it may be a species of *Clerodendrum*.

Citations: MOUNTED CLIPPINGS: Urb., Symb. Antill. 6: 68--69. 1909 (S).

CITHAREXYLUM LUCIDUM Schlecht. & Cham., *Linnaea* 5: 97. 1830 [not *C. lucidum* D. Don, 1831, nor Griseb., 1909].

Synonymy: *Citharexylon lucidum* Cham. & Schlecht. ex Mart. & Gal., *Enum.* 16: 12. 1844. *Citharexylon chamissonis* Walp., *Repert.* 4: 75--76. 1845. *Citharexylon lucidum* Cham. apud Walp., *Repert.* 4: 76, in syn. 1845. *Citharexylum lucidum* Cham. ex Schau. in A. DC., *Prodr.* 11: 612, in syn. 1847. *Citharexylum chamissonis* Walp. apud Schau. in A. DC., *Prodr.* 11: 612, in syn. 1847. *Citharexylum lucidum* Cham. & Schlecht. apud Jacks., *Ind. Kew.* 1: 550, in syn. 1893. *Citharexylum odoratissimum* Schiede & Deppe ex Moldenke, *Prelim. Alph. List Invalid Names* 17, in syn. 1940 [not *C. odoratissimum* Ørst., 1940]. *Citharexylum lucidum* C. DC. ex Moldenke, *Alph. List Invalid Names* 58, in syn. 1942.

Literature: Schlecht. & Cham., *Linnaea* 5: 97. 1830; Walp., *Repert.* 4: 75--76. 1845; Schau. in A. DC., *Prodr.* 11: 612. 1847; Jacks., *Ind. Kew.* 1: 549 & 550. 1893; O. E. Schulz in Urb., *Symb. Antill.* 6: 58. 1909; Roig, *Bol. Est. Exp. Agron. Santiago Vegas* 54: 793. 1928; Moldenke, *Alph. List Common Names* 22 & 30. 1939; Moldenke, *Geogr. Distrib. Avicenn.* 13. 1939; Moldenke, *Prelim. Alph. List Invalid Names* 16 & 17. 1940; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 1], 16 & 88. 1942; Moldenke, *Alph. List Invalid Names* 14, 15, & 58. 1942; Moldenke, *Phytologia* 2: 97. 1944; Roig, *Plant. Med. Cuba* 533. 1945; Moldenke, *Alph. List Cit.* 1: 50, 53, 118, 192, 218, 312, & 314. 1946; Moldenke, *Alph. List Invalid Names Suppl.* 1: 5. 1947; H. N. & A. L. Moldenke, *Pl. Life* 2: 53. 1948; Moldenke, *Alph. List Cit.* 2: 332, 341, 347, 419, 422, 499, 500, & 502 (1948), 3: 659, 663, 695, 834, 835, 900, & 901 (1949), and 4: 1038, 1055, & 1066. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 29 & 179. 1949; Roig, *Dicc. Bot.* 2: 1003. 1953.

Shrub or tree, to 8 m. tall; branches and branchlets medium-stout, obtusely or acutely tetragonal, brown, glabrous; twigs mostly more slender and more acutely tetragonal, more or less

striate-ribbed, glabrous; nodes annulate; principal internodes 4-6.5 cm. long; leaf-scars borne on stout, corky, ascending, closely appressed, glabrous sterigmata to 7 mm. long and mostly very conspicuous; leaves decussate-opposite; petioles stout, 6-12 mm. long, subterete or slightly canaliculate at the apex above, glabrous, dark; leaf-blades firmly chartaceous [not "coriaceous" as stated by Walpers], very dark-green above, lighter beneath, very shiny and glossy above, ovate-elliptic or elliptic to lanceolate, 10.7-19 cm. long, 4.7-7.6 cm. wide, acute or very shortly acuminate and mucronate at the apex, entire, acute or subcuneate to cuneate at the base, bearing a pair of small glands alongside the midrib at the very base, perfectly glabrous on both surfaces or pulverulent-punctate; midrib rather stout, especially at the base, very prominent beneath; secondaries slender, 6-10 pairs, arcuate-ascending, usually not much arcuate and not anastomosing, plane above, prominulent beneath; vein and veinlet reticulation fine, rather abundant, prominulent beneath; racemes axillary and terminal, mostly terminal, erect or nutant, 5.5-15 cm. long, to 2.8 cm. wide (in fruit), many-flowered, simple or branched; peduncles slender or stoutish, 1.5-2 cm. long, glabrous; rachis slender or stoutish, glabrate; pedicels slender, about 1 mm. long, glabrate, in fruit incrassate and to 3 mm. long; bracts and bractlets absent; prophylla setaceous, to 1 mm. long, often not obvious; flowers fragrant; corolla white; fruiting-calyx shallowly cupuliform or patelliform, to 4 mm. long and 8 mm. wide, glabrous, its rim entire or irregularly and rather shallowly lobed with rounded or truncate lobes; fruit oblong, to 12 mm. long and 11 mm. wide, fleshy, very smooth and shiny, 2-lobed, 2-sulcate, black in drying.

The type of this species was collected by Christian Julius Wilhelm Schiede (no. 128) in woods at Hacienda de la Laguna, Jalapa, Vera Cruz, Mexico, and is deposited in the herbarium of the Botanisches Museum at Berlin. The species has been amazingly misunderstood in the past. In the first place, Walpers, in 1845, gave it a new name, C. chamissonis, because its name is a homonym of C. lucidum D. Don. However, Don's name was published in 1831, while that of Schlechtendal and Chamisso appeared in 1830, so it is the Don name which must be abandoned. Then Schauer, in 1847, for some reason not clear to me, reduced C. chamissonis to C. caudatum L. In this he was followed by Jackson in the "Index Kewensis" in 1893, and by Schulz in 1909. "C. lucidum Cham. & Schlecht." was also reduced to C. caudatum by Jackson in 1893 and by Roig in 1933, while Schulz, in 1909, reduced "C. lucidum Cham." to C. caudatum. Actually all these names are based on the same Schiede 128 type from Jalapa and have nothing whatever to do with the West Indian C. caudatum. On the other hand, the "C. lucidum, Cham., Schlecht." of Griseb., Fl. Brit. W. Ind. 497 (1861) actually is C. caudatum insofar as the plant described is concerned, although some of the synonyms cited belong to C. spinosum L. It is this error by Grisebach which probably misled Jackson, Schulz,

and Roig.

Martens and Galeotti's Enumeration reprint is cited as "16: 12" in literature, but the copy in the library of the New York Botanical Garden has no part numbers printed on the title-pages of the various separately paged parts, but the part in which our reference occurs is marked "[xv]" in pencil. Whether it was actually the 15th or the 16th part of the reprinted work is not certain.

The species appears to inhabit woods, ascending to 1450 meters altitude, and has been collected in flower in January and from September through November, and in fruit in January, February, October, and November. The immature leaves are more membranous in texture and are dull and nigrescent in drying. Common names recorded for the plant are "naranjillo" and "tepesi". Herbarium material has been confused with C. caudatum and with C. donnell-smithii Greenm., both of which species it resembles in general aspect. In all, 54 herbarium specimens, including the types of all the names involved, and 7 mounted photographs have been examined.

Citations: MEXICO: Vera Cruz: Bonpland 4437 (P); Botteri s.n. [Orizaba] (P); Endlich 1159 (B), 1509 (B); Galeotti 7051 (Br, Br, Cb, K, P); Liebmann 11363 (Cp, F-689250), 11364 (Cp, F-689258, N), 11365 (Cp, F-689263), 15486 (Ca-424377, Cp, F-689264, W-1492785); Linden 32 (Br, Cb, K); Purpus 3708 (B, Bm, Ca-139936, Cb, Cb, E-119054, Ed, Ed, F-276458, G, N, P, P, W-841240), 6141 (Bm, Ca-168094, E-705173, F-386652), s.n. [Zacupapan, 1907] (Ca-139937); Sartorius s.n. (B); Schiede 128 [Macbride photos 34316] (B-isotype, F-871563-isotype, F-976254-photo of isotype, G-isotype, K-photo of isotype, Kr-photo of isotype, L-isotype, N-photo of isotype, N-photo of isotype, S-photo of isotype, V-isotype, Z-photo of isotype), s.n. [Jalappa] (L); Schiede & Deppe s.n. [prope Jalapa] (Bm, L). State undetermined: Liebmann 11191 (Cp, W-1315037). LOCALITY OF COLLECTION UNDETERMINED: Collector undesigned s.n. (Dr).

CITHAREXYLUM LYCIOIDES D. Don, Edinb. New Philos. Journ. 11 [Jan.—Mar.]: 237—238. 1831.

Synonymy: Citharexylon lycioides D. Don apud Walp., Repert. 4: 77. 1845. Citharexylon pauciflorum T. S. Brandeg., Zoe 5: 236. 1906.

Literature: D. Don, Edinb. New Philos. Journ. 11 [Jan.—Mar.]: 237—238. 1831; Walp., Repert. 4: 77. 1845; Schau. in A. DC., Prodr. 11: 614. 1847; Jacks., Ind. Kew. 1: 550. 1893; T. S. Brandeg., Zoe 5: 236. 1906; Prain, Ind. Kew. Suppl. 4: 49. 1913; Moldenke, Geogr. Distrib. Avicenn. 13. 1939; Moldenke, Prelim. Alph. List Invalid Names 17. 1940; Moldenke, Suppl. List Invalid Names 11. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16 & 88. 1942; Moldenke, Alph. List Invalid Names 15. 1942; Moldenke, Alph. List Cit. 1: 252 & 307 (1946), 2: 339, 419, & 499 (1948), and 3: 833 & 926. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29 & 179. 1949.

Unarmed virgate shrub; branches dark-chestnut; branchlets slender, blackish, acutely or obtusely tetragonal, glabrous; twigs numerous, short, very slender, gray or grayish-white, usually acutely tetragonal, often striate, glabrous; nodes rather obscurely annulate; principal internodes usually abbreviated, 6--34 mm. long; leaf-scars borne on comparatively stout prominent sterigmata to 3.5 mm. long; leaves numerous, decussate-opposite, often rather crowded, sessile; petioles obsolete; leaf-blades chartaceous, rather uniformly green on both surfaces, linear-lanceolate or linear-oblong to very narrowly elliptic-spatulate or even oblong-ovate, 1--4 cm. long, 3--7 mm. wide, acute or acuminate to obtuse at the apex, entire and slightly revolute along the margins, long-cuneate and attenuate at the base, not basally glanduliferous, glabrous on both surfaces, densely impressed-punctate beneath; midrib very slender, slightly prominulous beneath; secondaries very obscure; vein and veinlet reticulation indiscernible; racemes axillary [and subterminal?], 1- or 2-flowered, opposite, about 5 mm. long, usually 1--3-leaved; peduncles and rachis none; pedicels very slender, about 4 mm. long, gray, glabrous, jointed at the middle, in fruit to 7 mm. long; bracts, bractlets, and prophylla absent; calyx about 2 mm. long, its rim subtruncate and entire, slightly fimbriate; corolla tubular, dull-white, about 3 mm. long, pubescent in the throat, the lobes oblong, rounded at the apex; stamens 4 or 5; fruiting-calyx indurated, cupuliform, 2.5--3 mm. long, 4.5--5 mm. wide, not ribbed, glabrous, its rim truncate and entire or sometimes eventually shallowly and very irregularly lobed or split; fruit oblong, about 6 mm. long and 5 mm. wide, red or black, somewhat fleshy, glabrous, shiny, becoming wrinkled and 2-sulcate in drying.

The type of this very distinctive species was collected by Martín Sessé y Lacasta, José Mariano Mociffo, Juan Diego del Castillo, and José Maldonado (no. 2364) somewhere in Mexico, and is deposited in the herbarium of the Jardín Botánico at Madrid. The type of C. pauciflorum was gathered by Carl Albert Purpus (no. 1449) on mountain slopes at Ixniquilpan, Hidalgo, Mexico, in July, 1905, and is deposited in the herbarium of the University of California at Berkeley.

The species has a very decided appearance of the genus Lycium in the Solanaceae. The leaves at first glance appear to be petiolate, with very slender margined petioles 1--4 mm. long, but on closer examination a petiole cannot be distinguished. It is possible that the fruit on Purpus 1449 is still immature, because the base of the style still persists. The "Index Kewensis" dates the Zoe reference to "1907", but the first page of Brandegee's article has "issued September 16, 1906" plainly printed at the bottom.

Dr. Greerman on February 27, 1907, on a sheet of Purpus 1449 in the herbarium of the Chicago Natural History Museum, first suggested that C. pauciflorum might be conspecific with Don's species, although Brandegee considered the two to be distinct. In all, 12 herbarium specimens, including the types of all the

names involved, and 13 mounted photographs have been examined.

Citations: MEXICO: Hidalgo: Purpus 1449 (B—photo, Ca—139934, E—119057, E—photo, F—192987, G, K, N, N, N—photo, N—photo, S—photo, S—photo, W—1208196, W—photo, Z—photo, Z—photo). Vera Cruz: Hahn 90 (N—photo, P, Z—photo). State undetermined: Sessé, Mociño, Castillo, & Maldonado 2364 (F—851477—isotype, N—isotype, N—photo of type, Q—type, Z—photo of type).

CITHAREXYLUM MACRADENIUM Greenm. in Donn. Sm., Enum. Pl. Guatem.

7: 70, hyponym. 1905; Field Columb. Mus. Publ. Bot. 2: 188—189. 1907.

Synonymy: Citharexylum caudatum Donn. Sm. apud Greenm., Field Columb. Mus. Publ. Bot. 2: 189, in syn. (in part). 1907 [not C. caudatum L., 1770, nor Sw., 1847, nor Sagra, 1909]. Citharexylum macradenium Greene ex Moldenke, Alph. List Invalid Names Suppl. 1: 5, in syn. 1947. Cytherexylum macradenium Greenm., in herb.

Literature: Greenm. in Donn. Sm., Enum. Pl. Guatem. 7: 70. 1905; Greenm., Field Columb. Mus. Publ. Bot. 2: 188—189. 1907; Prain, Ind. Kew. Suppl. 3: 43 (1908) and 4:49. 1913; Standl., Field Mus. Publ. Bot. 18: 1001. 1938; Moldenke, Geogr. Distrib. Avicenn. 17. 1939; Moldenke, Alph. List Common Names 10. 1939; Moldenke, Alph. List Invalid Names 58. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 22 & 88. 1942; Moldenke, Bot. Gaz. 102: 161. 1944; Moldenke, Phytologia 2: 97. 1944; Moldenke, Alph. List Cit. 1: 58 & 301. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 5. 1947; Moldenke, Alph. List Cit. 2: 339—341, 344, 346, 389, 390, 436, 447, & 465 (1948), 3: 817, 940, 944, & 945 (1949), and 4: 999, 1000, 1057, 1082, & 1087. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 39, 40, & 179. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 4. 1949.

Tree, to 18 m. tall, the crown rounded; trunk to 25 cm. in diameter at the base; bark gray, roughened by raised oblong strips or pieces; branchlets medium, acutely tetragonal, more or less 4-margined, light-gray, glabrous; twigs and young shoots slender, more or less acutely tetragonal, nigrescent in drying, glabrous, shiny; nodes annulate; principal internodes 1.8--5 cm. long; leaf-scars borne on short ascending sterigmata 1--3 mm. long; leaves decussate-opposite (or subopposite on vigorous shoots), very easily detached from the stem; petioles slender, 1.1--2.7 cm. long, subterete or sulcate above, glabrous, nigrescent in drying; leaf-blades firmly chartaceous, rather bright-green on both surfaces, brunnescenscent or nigrescent in drying, lanceolate or narrowly oblong or elliptic, 7--16.5 cm. long, 1.7--4.2 cm. wide, acute or short-acuminate at the apex (the apex itself obtuse, apiculate, or retuse), entire, cuneately narrowed at the base, often infundibularly involute into the petiole and bearing 1--3 (mostly 2) extremely large, thick, black glands to 4 mm. long just above the base, one of which often is terminated by a light discoid stigma-like body, glabrous and densely impressed-punctate on both surfaces, but not shiny; midrib slender, sharply prominu-

lent (except at the base) above, prominent beneath; secondaries slender, 6 or 7 pairs, arcuate-ascending, more or less prominent on both surfaces, anastomosing near the margins; vein and veinlet reticulation sparse, mostly obscure; racemes terminal, simple or compound with a pair of lateral branches near the base, the central one 8.5--19.5 cm. long, 1--1.5 cm. wide, densely many-flowered, mostly erect, sometimes recurved; peduncles rather stoutish, 2--2.5 cm. long, acutely tetragonal, glabrous, often with 1 or 2 bractlet-bearing nodes; rachis slender or stoutish, angled or ribbed, glabrous; pedicels slender, 1--1.5 mm. long, glabrous, in fruit elongating to 5 mm.; bracts and bractlets caducous; prophylla setaceous, about 1 mm. long; calyx cupuliform, about 2.5 mm. long, 5-angled in cross-section, its rim subtruncate, minutely 5-denticulate; corolla white, tubular-infundibular, its tube about 4 mm. long, externally essentially glabrous, pubescent in the throat, the lobes oblong, about 2 mm. long, puberulent on both surfaces; stamens included; style puberulent; fruiting-calyx subpatelliform, about 2.5 mm. long and 6 mm. wide, 5-ribbed, glabrous, its rim irregularly and shallowly erose; fruit subglobose or round, 6--10 mm. long and wide, lustrous, fleshy when mature, bony when immature, orange or orange-yellow, 2-sulcate, glabrous.

The type of this species was collected by Adolfe Tonduz (no. 7407) at Páturaga de la Palma, San José, Costa Rica, at an altitude of 1459 meters, on August 25, 1898, and is deposited in the Gray Herbarium of Harvard University. Specimens have been confused in herbaria with C. caudatum L. and C. donnell-smithii Greerm., both of which are very similar, and with Cytharexylum villosum Jacq. [= Citharexylum fruticosum var. villosum (Jacq.) O. E. Schulz], which is totally dissimilar! Common names reported are "dama", "damas", and "danna". The first of these is also applied to C. caudatum and C. donnell-smithii, and the second to C. donnell-smithii.

The species inhabits forests and cloud-forests, in rich clay-loam soil, in semi-shade, and in open shade at the forested edges of barrancas, from 380 to 2043 meters altitude. Standley states that it is commonest between 1100 and 2000 meters. Smith says: "our commonest tree.....fruits in great favor with wild pigeons". It has been collected in anthesis in January, February, and August, and in fruit in March and May. In all, 35 herbarium specimens, including the types of all the names involved, and 5 mounted photographs have been examined.

Citations: COSTA RICA: Alajuela: Brenes 4363 [9540 (148)] (F-852233, N), 16195 (F--857521, N), 16195a (N), 17162 (F--859614, N); Skutch 3721 (N, S); A. Smith 168 (F--918661, N), H.90 (F--941344). Heredia: H. Pittier 2132 (N, W--1323215); Tonduz 2132 (Br, Mu--3787, W--1323214). San José: Tonduz 2182 (P), 7407 [Herb. Instit. Physico-geogr. Nat. Costaric. 12502] (B--isotype, B--isotype, B--photo of type, Bm--isotype, C--isotype, F--76908--isotype, G--type, K--isotype, K--isotype, K--photo of type, Mu--

3826—*isotype*, N—*photo of type*, S—*photo of type*, W—355514—*isotype*, W--1323213—*isotype*, X—*isotype*, X--*isotype*, Z--*photo of type*), s.n. [Herb. Instit. Physico-geogr. Nat. Costaric. 11646; Herb. Pittier 11646] (Cm, V--10966); M. Valerio 31 (F--873055). PANAMA: Coclé: P. H. Allen 2784 (N).

CITHAREXYLUM MACROCHLAMYS Pittier, Contrib. U. S. Nat. Herb. 18: 254. 1917.

Synonymy: *Citharexylum macranthum* Pittier, Contrib. U. S. Nat. Herb. 18: 169. 1916 [not *Citharexylon macranthum* Hayek, 1908].

Literature: Hayek in Engl., Bot. Jahrb. 42: 170. 1908; Pittier, Contrib. U. S. Nat. Herb. 18: 169 (1916) and 254. 1917; Hill, Ind. Kew. Suppl. 6: 47. 1926; Moldenke, Geogr. Distrib. Avicenn. 17. 1939; Moldenke, Prelim. Alph. List Invalid Names 16. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 23 & 88. 1942; Moldenke, Alph. List Invalid Names 14. 1942; Moldenke, Bot. Gaz. 102: 161. 1944; Moldenke, Castanea 10: 41. 1945; Moldenke, Alph. List Cit. 1: 134 (1946), 3: 813 (1949), and 4: 1034 & 1076. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 40, 59, & 179. 1949.

Tree, to 30 m. tall; trunk to 50 cm. in diameter at the base, straight, covered with a reddish rugose bark, the core dirty-yellow; wood hard and tough; crown elongate; limbs slightly ascending; branchlets and twigs stout, more or less fistulose, acutely tetragonal or 6-angled, very slightly 4--6-margined, light-brown, glabrous; nodes annulate; principal internodes 4.5--7.5 cm. long; leaf-scars tremendously large, oblong, about 5 mm. long and 3 mm. wide, sessile or borne on extremely short sterigmata, most prominent at the base; leaves usually alternate, ternate at the ends of the young floriferous shoots; petioles slender or stout, 1.5--3.7 cm. long, more or less broadly sulcate above, greatly ampliate in the form of a shield at the base, densely but very minutely puberulent or glabrate; leaf-blades thin-chartaceous or membranous, bright-green on both surfaces, whitish beneath when immature, elliptic-oblong or elliptic to ovate or subobovate, often undate in drying, 9.8--25 cm. long, 5.5--9.2 cm. wide, acute or subacute to acuminate or rounded at the apex, entire, often undulate along the margins in drying, varying from subtruncate to acute or rounded-attenuate or even cuneate at the base, bearing 2 or 3 very large, thickened, black glands at the very base beneath and parallel to the petiole, obsoletely and very minutely puberulent on both surfaces, especially beneath, or entirely glabrous, smooth to the touch above, finely reticulate-roughened between the salient veins beneath; midrib stoutish, plane or more or less prominulent above, prominent beneath; secondaries slender, 10--15 pairs, close, arcuate-ascending, plane above, prominulent beneath, hardly at all or merely obscurely anastomosing at the margins; vein and veinlet reticulation extremely fine and abundant, obscure or more or less prominulent above, conspicuous to the last detail (but usually not at all prominulent except for the larger ones) beneath; inflorescence subterm-

inal, the racemes axillary, usually ternate, simple, mostly erect or ascending, on the 2 or 3 upper nodes of the branchlets, 13--28 cm. long, 1--2 cm. wide, loosely many-flowered; peduncles slender or stout, 4--7.5 cm. long, minutely puberulent or glabrate; rachis slender or stoutish, glabrous to minutely hirsute or puberulous; pedicels slender, 0.5--1.5 mm. long, puberulent or minutely hirtellous; bracts and bractlets absent; prophylla setaceous, about 1 mm. long; flowers distinctly zygomorphic, large for the genus, about 17 mm. long; calyx hypocrateriform, about 5 mm. long, subglabrous or finely pubescent, its rim irregularly 5-dentate; corolla white, 15.5--17 mm. long, its tube cylindric, slightly arcuate, about 11 mm. long, broad, its limb 5-parted, the lobes well developed, the median one irregularly rounded-acuminate with a narrow claw, the lateral ones elongate, conchiform, and obtusely pointed at the apex; stamens inserted well below the middle of the corolla-tube, included, entirely glabrous; filaments slender; anthers elliptic, emarginate at the base, rounded at the apex; pistil entirely glabrous; style 1--1.5 mm. long; stigma capitellate, subbilobed, papillose on the surface; ovary ovoid, 4-celled, each cell 1-ovulate; fruiting-calyx and fruits not known.

The type of this remarkable species was collected by Henri François Pittier de Fábrega (no. 3897) in a high forest along the Río Fató, at an altitude of 10 to 100 meters, above Nombre de Dios, Colón, Panama, on July 8, 1911, and is deposited in the United States National Herbarium at Washington. In his original publication Pittier bases the species on two specimens, his nos. 3897 and 4199, in the United States National Herbarium, both collected at the same locality, the latter on August 16, 1911. However, only the no. 3897 is inscribed by him "type specimen" on the sheet, so I am regarding that collection as the type collection only. The "Canal Zone" on the labels of 4199, which formed the basis of my recording of the species from the Canal Zone in previous publications on geographic distribution, is apparently an error, since Pittier states that the type locality is definitely in the Panamanian province of Colón.

The species inhabits wet forests and thickets, at altitudes of 2 to 250 meters, and has been collected in anthesis in February and July. The extremely stout, hollow branchlets and twigs, the large sessile leaf-scars, the ternate leaves and racemes the large thin leaf-blades, and the large flowers characterize this species quite well. Pittier reports that its wood is little used, and that a common name is "iguanero". In all, 9 herbarium specimens, including the types of all the names involved, and 5 mounted photographs have been examined.

Citations: PANAMA: Colón: H. Pittier 3897 (B--photo of type, G--isotype, K--photo of type, N--isotype, N--isotype, N--photo of type, S--photo of type, W--678974--type, Z--photo of type), 4199 (Bm, N, W--679301). COLOMBIA: Cauca: Cuatrecasas 14271 (N). Futumayo: Cuatrecasas 10886 (W--1798858).

CITHAREXYLUM MACROPHYLLUM Poir. in Lam., Encycl. Méth. Bot. Suppl. 2: 367—368. 1811.

Synonymy: *Citharexylon macrophyllum* Poir. apud Steud., Nom. Bot., ed. 1, 202. 1821.

Literature: Poir. in Lam., Encycl. Méth. Bot. Suppl. 2: 367—368. 1811; Poir. in Lam., Dict. Sci. Nat. 9: 286. 1817; Steud., Nom. Bot., ed. 1, 202 (1821) and ed. 2, 375. 1840; Walp., Repert. 4: 78. 1845; Jacks., Ind. Kew. 1: 550. 1893; Pulle, Enum. Pl. Surin. 403. 1906; Moldenke, Geogr. Distrib. Avicenn. 19 & 21. 1939; Moldenke in Pulle, Fl. Surin. 4 (2): 291—293. 1940; Moldenke, Suppl. List Common Names 6. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 31, 33, & 88. 1942; Moldenke, Phytologia 2: 97. 1944; Moldenke, Alph. List Cit. 1: 60, 82, 205, 207, 277, & 299 (1946) and 2: 353, 448, 567, 582, 587, & 643. 1948; Moldenke, Bull. Torrey Bot. Club 75: 563. 1948; Moldenke, Alph. List Cit. 3: 669, 725, 756, 892, 951, & 954 (1949) and 4: 1040, 1066, & 1146. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 59, 66, 67, & 179. 1949.

Shrub or tree, to 23 m. tall; trunk to 30 cm. in diameter at the base, buttressed and fluted, the plank buttresses to 1 m.; bark dirty-gray; slash flaky; branchlets and twigs medium or stoutish, acutely or obtusely tetragonal, very minutely puberulent or subglabrate, mostly fistulose, brown (often very dark), lenticellate, the floriferous shoots pithy; nodes annulate; principal internodes 2.7—8 cm. long; leaf-scars borne on short ascending sterigmata 1—2.5 mm. long, large and often extending over the edge of the sterigmata and partially down their sides; leaves mostly ternate, occasionally decussate-opposite; petioles stout, 1—3.2 cm. long, mostly sulcate above, glabrous or subglabrate, brown, dark in drying; leaf-blades very firmly chartaceous or "thin-leathery", dark-green and shiny above, usually much lighter (or gray when fresh) beneath, stiff when fresh, oblong-elliptic or subobovate, 8.5—23 cm. long, 3.3—10 cm. wide, acute or acuminate at the apex, entire, acute or subcuneate at the base, very obscurely and minutely puberulous beneath when young, glabrous on both surfaces when mature, "rugose and scabrous" when fresh, bearing a pair of large, elongate, crateriform glands alongside the petiole at the very base beneath; midrib rather stout, plane above, prominent beneath; secondaries slender, 10—12 pairs, arcuate-ascending, usually plane above, prominent beneath; vein and veinlet reticulation very fine and abundant, prominent and conspicuous to the last detail beneath; racemes axillary and terminal, the axillary ones ternate, simple or compound with a pair of short lateral branches, erect or ascending (or nutant in fruit), 6—25 cm. long, to 1.5 cm. wide, rather densely many-flowered, unilateral; peduncles slender or (usually) stoutish, 1.5—3 cm. long, minutely puberulous, often with 1 bractlet-bearing node; rachis slender or (usually) stoutish, minutely puberulous; pedicels slender, about 1 mm. long, stouter but no longer in fruit, puberulent; bracts none; bractlets one pair or none, linear, about 4 mm. long, puberulent; prophylla setaceous, less than 1 mm. long; buds creamy-green or

yellow; flowers sweet-scented; calyx green, tubular-cyathiform, 3.5-4 mm. long, about 2 mm. wide, usually not very patent during anthesis, glabrous or puberulent, its rim truncate or 5-dentate; corolla white, infundibular, its tube narrowly cylindrical, 6-7 mm. long, arcuate, the limb 5-parted, the lobes ovate-lingulate, 2-3.5 mm. long, 1-1.5 mm. wide, obtuse at the apex; fruiting-calyx broadly cupuliform, indurated, 4-5 mm. long, about 7 mm. wide, minutely puberulent, its rim subtruncate, subentire; fruit elliptic, to 13 mm. long and 6 mm. wide, bony, not fleshy, apiculate, glabrous, faintly 2-sulcate, narrowed at the base and apex, light-brown in drying.

The type of this species was collected by Joseph Martin before 1800 at Cayenne, French Guiana, and is deposited in the Desfontaines herbarium. The species is said to inhabit sandy soils, forests, and swamps, and has been collected in anthesis from February through April and in June. The crateriform basal glands seen here are quite different from the thick swollen ones as are seen on C. macradenium Greenm. and the flat discoid ones of other species of the genus. The venation of the lower leaf-surface is very beautiful because of being prominent to the last detail, not as coarsely so as in C. fruticosum L., but more finely and delicately. The leaf-blades are rarely rounded to a merely subacute base. It reminds one very much of C. macrochlamys Pittier, which differs chiefly in its much thinner leaf-blades and less prominent venation on the lower surface. It has been confused in herbaria with C. cinereum L. [= C. fruticosum] and C. myrianthum Cham.; in fact, it also closely resembles the latter species. Mell & Mell 247 is anomalous in its woody branchlets of light-gray color, and its strictly opposite and smaller leaves. It appears very close to C. myrianthum, and, having been collected at "Georgetown", it may indeed represent a cultivated plant of this latter Brazilian species.

Lehmann B.T.645 may have been gathered in the department of Cauca; its label merely says "In Micay & Buenaventura". It closely resembles C. macrochlamys. The "C. myrianthum Cham." of Pulle, Enum. Pl. Surin. 403 (1906) is actually C. macrophyllum and is not the C. myrianthum of Chamisso, Linnaea 7: 117 (1832). Common names recorded for our species are "citharexylum a grandes feuilles", "cotelet à grandes feuilles", "kasaroballi", "leja gado", and "oeroejatoe". Hostmann 552 in the Paris herbarium has a label inscribed "Hortmann 552". In all, 69 herbarium specimens, but not the type, and 4 mounted photographs have been examined.

Citations: COLOMBIA: Valle del Cauca: F. C. Lehmann B.T.645 (Cb, Cb, G, K, Le, N, V-6732). BRITISH GUIANA: Herb. Forest. Dept. Er. Guian. 4785 [field no. 2049] (N), 7709 [field no. J.B. 25] (N, S); Jerman 1854 (K, N--photo, U, Z--photo), 7038 (N, N, U), 7043 (F-48031, N), 7045 (B, K); Lockie s.n. [Herb. Br. Guian. Forest. Dept. 2026] (K, K, N); Mell & Mell 247 (N, W-1481569). SURINAM: B. W., Bureau of Forestry 1663 [5155] (Ig, N),

3891 (Ut), 4289 (Ut), 4712 (Ut), 4767 (Ut), 4772 (Ut), 5155 (Ut), 5907 (Ut), 5915 (Ut); Focke 39 (Le, Le), 122 (Le); Herb. Acad. Rheno-Traiect. 314 [7129] (N, Ut); Hostmann 552 (B, K, K, N, N—photo, P, Ut, V, V—285038, Z—photo), s.n. (Le); Hostmann & Kappler 552 (V—211666); Mus. Bot. Acad. Rheno-Traiect. s.n. (Ut); Samuels 108 (A, B, G, K, Le, N, P, W—866116, W—866147), 210 (B, G, K, N); Soeprato 26j (Ut); Splitgerber 595 (Le), 839 (Le); Wullschlægel 768 (Br, N).

CITHAREXYLUM MEXICANUM Moldenke in Fedde, Repert. 37: 229—230. 1934.

Literature: Moldenke in Fedde, Repert. 37: 229—230. 1934; Hill, Ind. Kew. Suppl. 9: 67. 1938; Moldenke, Geogr. Distrib. Avicenn. 13. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16 & 88. 1942; Moldenke, Alph. List Cit. 1: 52 & 54 (1946), 2: 347 (1948), and 3: 755. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29 & 179. 1949.

Shrub or large tree; branchlets slender, light-brown or grayish, obtusely tetragonal, lenticellate, obscurely and very minutely puberulous; twigs slender, dark-brown in drying, minutely puberulous; nodes obscurely annulate; principal internodes 1.8—5.5 cm. long; leaf-scars borne on short ascending sterigmata, with overlapping edges; leaves decussate-opposite (or subopposite on young shoots); petioles slender, elongate, 0.9—4.2 cm. long, glabrate; leaf-blades thin-chartaceous, dark-green above, the immature ones often nigrescent in drying, lighter beneath, dull, oblong or elliptic to ovoid or rarely subrhomboid, 4—11.4 cm. long, 1.8—7 cm. wide, bluntly acute or obtuse at the apex, entire or sparsely serrate above the middle with large and coarse mostly apiculate teeth, acute or cuneate at the base, usually bearing a pair of small and inconspicuous glands at the very base, glabrate on both surfaces, often more or less punctate beneath; midrib slender, sometimes more or less flexuous, prominent beneath; secondaries slender, 5—8 pairs, very irregular, arcuate-ascending, more or less obscurely anastomosing at the margins, prominent beneath, sometimes slightly so above; vein and veinlet reticulation very irregular, sometimes rather conspicuous on both surfaces; racemes axillary (in the uppermost axils) and terminal, often terminating short axillary twigs, simple, ascending or nutant, rather densely many-flowered, 7—17 cm. long, to 1.5 cm. wide; peduncles slender or stoutish, 6—14 mm. long, glabrous; rachis slender, glabrous; pedicels filiform, 1—2 mm. long, glabrous; bracts and bractlets absent; prophylla setaceous, about 1 mm. long; calyx campanulate, about 3.1 mm. long and 2.4 mm. wide, lightly 5-costate, densely puberulent, the rim lightly and shortly 5-dentate; corolla infundibular, its tube broadly cylindrical, about 3.9 mm. long, about 1.1 mm. wide at the base and to 2.8 mm. wide at the apex, externally glabrate, densely pilose in the throat within, the limb 5-parted, the lobes somewhat unequal, ovate, 1.5—1.8 mm. long, 1—1.4 mm. wide, rounded at the apex; fertile stamens 4, not plain-

ly didynamous, included, inserted 1--1.5 mm. below the mouth of the corolla-tube; filaments 0.5--0.7 mm. long; anthers oblong, about 1.1 mm. long and 0.5 mm. wide; staminode filiform, about 0.7 mm. long; pistil included; style about 1.8 mm. long, glabrous, dilated into the ovary at the base; stigma very shortly bilobed, the lobes about 0.3 mm. long, not fimbriate; ovary oblong, about 1 mm. long and 0.8 mm. wide, glabrous, 4-celled; fruiting-calyx very shallowly cupuliform, light, about 2 mm. long and 5 mm. wide, glabrate, 5-ribbed, sometimes puberulent on the ribs, its rim rather deeply 5-lobed, with rounded and apiculate lobes; fruit subglobose, about 6 mm. long and wide, fleshy, glabrous, shiny, black and 2-sulcate in drying.

The type of this species was collected by Eugène Bourgeau (no. 3229) at San Cristobal, in the region of Mount Orizaba, Vera Cruz, Mexico, on October 10, 1866, and is deposited in the herbarium of the Royal Botanic Gardens at Kew. It was originally distributed as a species of Duranta. It was Dr. Greenman who first pointed out that it is rather a member of the genus Citharexylum and probably conspecific with Botteri 458 from the same locality. In fact, all three known collections are from the same Mount Orizaba area. Two of the Paris isotypes are inscribed "grand arbre" and the other "grand arbuste". It has been collected in flower in July and in fruit in October. In all, 9 herbarium specimens, including the type, and 4 mounted photographs have been examined.

Citations: MEXICO: Vera Cruz: Botteri 458 (G); Bourgeau 3229 (B--photo of type, F--976778--isotype, G--isotype, K--type, N--isotype, N--photo of type, P--isotype, P--isotype, P--isotype, S--photo of type, Z--photo of type); F. Müller s.n. [July, 1853](M).

CITHAREXYLUM MICROPHYLLUM (P. DC.) O. E. Schulz in Urb., Symb. Antill. 6: 59. 1909.

Synonymy: Myginda ? microphylla P. DC., Prodr. 2: 12. 1825. Ilex microphylla Spreng. ex P. DC., Prodr. 2: 12, in syn. 1825 [not I. microphylla Hook., 1837]. Crossopetalum microphyllum (P. DC.) Kuntze, Rev. Gen. Pl. 1: 116. 1891.

Literature: P. DC., Prodr. 2: 12. 1825; Steud., Nom. Bot., ed. 2, 1: 802 (1840) and 2: 170. 1841; Kuntze, Rev. Gen. Pl. 1: 116. 1891; Urb. in Engl., Bot. Jahrb. 15: 324. 1892; Jacks., Ind. Kew. 1: 1206 (1893) and 2: 275. 1894; Durand. & Jacks., Ind. Kew. Suppl. 1: 116. 1901; Metz, Beih. Bot. Centralbl. 15: 379. 1903; Urb. in Urb. & Graebn., Festschrift Aschers. 58. 1904; O. E. Schulz in Urb., Symb. Antill. 6: 59. 1909; Prain, Ind. Kew. Suppl. 4: 49. 1913; Moldenke, Geogr. Distrib. Avicenn. 7. 1939; Moldenke, Alph. List Common Names 13 & 20. 1939; Moldenke, Prelim. Alph. List Invalid Names 28 & 33. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 26 & 88. 1942; Moldenke, Alph. List Invalid Names 22, 27, & 33. 1942; Moldenke, Phytologia 2: 97. 1944; Moldenke, Alph. List Cit. 1: 39, 188, & 189 (1946), 2: 427 & 437 (1948), 3: 654 (1949), and 4: 1054 & 1061--1063. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 47 & 179. 1949.

Shrub, to 2 m. tall; branches rather stout and woody; branchlets slender, rather stiff, obtusely tetragonal (sometimes obscurely so), light, very obscurely pulverulent or short-pilose to subglabrate, bearing few or many short spine-like twigs, the floriferous ones greatly abbreviated; nodes not annulate; principal internodes abbreviated, 2--13 mm. long; leaf-scars subsessile (on young twigs) or borne on short slender ascending sterigmata; leaves typically decussate-opposite, often crowded or clustered on greatly abbreviated spurs, sometimes scattered through the members of each closely crowded pair being only subopposite; petioles very slender, 1--9 mm. long, glabrous or pilose, not glanduliferous; leaf-blades chartaceous or membranous, brownish-green on both surfaces or dark-green above and lighter beneath, oblong or narrow-oblong to linear or narrow-elliptic, 4--40 mm. long, 2.5--6 mm. wide, obtuse or rounded to emarginate at the apex, entire and subrevolute along the margins, acute or more or less acuminate to subcuneate at the base, not glanduliferous at the base, glabrous or subglabrate and punctulate on both surfaces or slightly hirtellous to villosulous on the midrib and secondaries beneath, smooth to touch above, reticulate-nervose beneath; midrib very slender, somewhat impressed above, prominulous beneath; secondaries several, usually 2 or 3 per side, ascending, obscure above, manifest beneath; veinlet reticulation obscure above, visible beneath; racemes apparently terminating short spur-like twigs, reduced to 1--6 flowers, inconspicuous, very small, about 6 mm. long, often sessile; peduncles, rachis, and pedicels abbreviated, filiform, glabrate, or the rachis tomentose; bracts and bractlets none; prophylla setaceous, minute, about 0.5 mm. long; calyx cyathiform, about 1.5 mm. long, externally glabrous; corolla greenish or white, hypocrateriform, about 2.5 mm. long, externally glabrous, villous in the throat within, the lobes narrowly obovate, about 1/3 as long as the tube; stamens 4; filaments about 0.33 mm. long; anthers about 0.75 mm. long; staminode rudimentary; style about 1 mm. long; fruiting-pedicels about 0.5 mm. long; fruiting-calyx light and herbaceous, shallowly cupuliform, about 2 mm. long and 4 mm. wide, glabrous, its rim obscurely 5-lobed or merely erose; fruit subglobose or oblong, red or scarlet, fleshy, 3--8 mm. long, 2.5--7 mm. wide, glabrous and shiny, truncate at the apex, 2-sulcate in drying; pyrenes bilocular; embryo oblong, 1.5--2.5 mm. long.

The type of this very distinct species was collected by Carlo Giuseppe Bertero (no. 513) at Santo Domingo, Dominican Republic. Although this plant has been in three separate genera in its past nomenclatural history, Urban as far back as 1892 suggested that it is actually verbenaceous, while Radlkofer in August, 1900, pointed out on a sheet in the Munich herbarium that it probably belongs in Citharexylum. Schulz claims that it is related to C. berlandieri B. L. Robinson, but I feel that it is closer to C. brachyanthum (A. Gray) A. Gray. It has been collected in limestone regions, on mountaintops, and is said to prefer arid thickets, especially along roadsides, ascending to 150 m.

altitude. Ekman says that it is "not common". It has been collected in anthesis in February and June, and in fruit in February and July. Drawings of the hairs may be seen on the Munich herbarium isotype and on the photographs of this specimen. It is worthy of note that the Index Kewensis Supplement 4 erroneously cites this binomial to page "9", instead of "59", in Urban's Symbolae.

Common names reported are "gatigal" and "mala-muger". In all, 27 herbarium specimens, including the types of all the names involved, and 9 mounted photographs have been examined.

Citations: HISPANIOLA: Dominican Republic: Bertero 513 (B--isotype, B--isotype, E--photo of isotype, Mu--3903--isotype, N--photo of isotype, N--photo of isotype, S--photo of isotype, W--photo of isotype, Z--photo of isotype, Z--photo of isotype). Haiti: Ekman H.1019 (B, B, N, N, S, S, W--1304767), H.4456 (B, S, S, W--1410231), H.8508 (B, N--photo, S, S, W--1413103, Z--photo), H.8540 (B, S); Leonard & Leonard 13143 (A, N, W--1451821), 13330 (E--993057, K, W--1451996, W--1451997).

CITHAREXYLUM MIRIFOLIUM Moldenke in Fedde, Repert. 37: 230--231. 1934.

Literature: Moldenke in Fedde, Repert. 37: 230--231. 1934; Hill, Ind. Kew. Suppl. 9: 67. 1938; Moldenke, Geogr. Distrib. Avicenn. 20. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 32 & 88. 1942; Moldenke, Alph. List Cit. 1: 230 (1946), 2: 333 & 427 (1948), and 4: 1067. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 62 & 179. 1949.

Tree, to 4 m. tall, or small, somewhat branched, adsurgent shrub; bark light-colored; branchlets medium, light-gray, very sharply tetragonal, lenticellate, fistulose, glabrous; twigs slender, sharply tetragonal, gray or substramineous, glabrous; nodes obscurely annulate; principal internodes 0.7--3 cm. long; leaves decussate-opposite (or subopposite on young twigs), borne on stout, corky, closely appressed, glabrous sterigmata 1--4 mm. long; petioles slender, 4--6 mm. long, flattened above, margined, glabrous; leaf-blades firmly chartaceous or subcoriaceous, stiff, bright-green and very shiny above, dull beneath, appearing as though varnished above, oblong-ob lanceolate, 3.5--6.7 cm. long, 1.8--2.7 cm. wide, acute or rounded at the apex, entire but slightly subrevolute along the margins in drying, cuneate at the base and prolonged into the petiole, not glanduliferous, glabrous on both surfaces; midrib slender, prominent beneath, prominent above; secondaries slender, 5--7 pairs, arcuate-ascending, anastomosing at the margins, slightly prominent beneath, very greatly and beautifully so above; vein and veinlet reticulation abundant, very slightly prominent (or the lesser parts obscure) beneath, very pronouncedly and conspicuously prominent and reticulate above; racemes terminating the twigs, erect, short, 4.5--10 cm. long, 2.5--2.7 cm. wide in fruit, rather few- or submany-fruited; peduncles rather heavy and stout in fruit, 7--15 mm. long, stramineous, lenticellate, glabrous, not nodose nor bracteate; rachis strong and stout in fruit, stramineous,

glabrous; fruiting-pedicels stout, corky, about 3 mm. long, stigma-like; bracts and bractlets absent or caducous; prophylla setaceous; flowers not seen; fruiting-calyx shallowly cupuliform, patent, heavy, about 3.5 mm. long and 8.5 mm. wide, glabrous, ribbed, its rim deeply 5-lobed with blunt and broadly triangular lobes; fruit oblong or ovoid, about 11 mm. long and 10 mm. wide when mature, violet when immature, finally becoming black, very fleshy and shiny, glabrous, 4-seeded.

The type of this strikingly handsome species was collected by Wilhelm Gehriger (no. 269) on the quebrada of the town of Mucurubá, in declivities and pedregales that are very steep, sunny, and dry, at an altitude of 2700 to 2800 meters, Mérida, Venezuela, on June 27, 1930, and is deposited in the herbarium of the Arnold Arboretum at Cambridge. It is a most beautiful species because of its marvelously handsome leaf-blades on which the venation is very prominent and stands out most pronouncedly and conspicuously, forming a beautiful reticulum on the upper surface. Only the larger elements are prominent beneath, the remainder being obscure there. The blades are so very shiny above that they appear as though varnished, a character rendered even more pronounced by the contrast with the dull under surface. The plant is obviously closely related to *C. fruticosum* L., and has been collected in fruit in February and June. In all, 10 herbarium specimens, including the type, and 5 mounted photographs have been examined.

Citations: VENEZUELA: Mérida: Bernardi 6163 (N); Gehriger 269 (A--type, B--photo of type, Cb--isotype, D--691807--isotype, E--1003718--isotype, F--690253--isotype, K--photo of type, N--isotype, N--isotype, N--photo of type, S--photo of type, Ve--12647--isotype, W--1498556--isotype, Z--photo of type).

CITHAREXYLUM MOCINNI D. Don, *Edinb. New Philos. Journ.* 11 (Jan.--Mar.): 238. 1831.

Synonymy: *Citharexylum tomentosum* Sessé & Moc. ex D. Don, *Edinb. New Philos. Journ.* 11 (Jan.--Mar.): 238, in syn. 1831 [not *C. tomentosum* Poir., 1811, nor H.B.K., 1817, nor Klotzsch & Karst., 1940]. *Citharexylum rugendasii* Cham., *Linnaea* 7: 120--121. 1832. *Citharexylum rugendasii* Cham. apud Walp., *Repert.* 4: 76--77. 1845. *Citharexylum mocinni* D. Don apud Walp., *Repert.* 4: 75. 1845. *Citharexylum mocini* D. Don apud Schau. in A. DC., *Prodr.* 11: 614. 1847. *Citharexylum tomentosum* Moc. & Sessé apud Jacks., *Ind. Kew.* 1: 550, in syn. 1893. *Citharexylum rugendasii* var. *endlichii* Loes. ex Moldenke, *Prelim. Alph. List Invalid Names* 17, in syn. 1940. *Citharexylum mocinnii* D. Don ex Moldenke, *Alph. List Invalid Names* 58, in syn. 1942. *Citharexylum mocini* D. Don, in herb.

Literature: D. Don, *Edinb. New Philos. Journ.* 11 (Jan.--Mar.): 238. 1831; Cham., *Linnaea* 7: 120--121. 1832; Steud., *Nom. Bot.*, ed. 2, 1: 375. 1840; Walp., *Repert.* 4: 75--77. 1845; Schau. in A. DC., *Prodr.* 11: 612. 1847; Jacks., *Ind. Kew.* 1: 550. 1893;

Yuncker, Field Mus. Publ. Bot. 17: 389. 1938; Moldenke, Geogr. Distrib. Avicenn. 13 & 16. 1939; Moldenke, Prelim. Alph. List Invalid Names 17 & 18. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16, 80, & 88. 1942; Moldenke, Alph. List Invalid Names 14, 15, & 58. 1942; Moldenke, Known Geogr. Distrib. Verbenac. Suppl. 1: 3. 1943; Moldenke, Alph. List Cit. 1: 52, 53, 117, 192, & 218. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 5. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 58, 73, & 79. 1948; Moldenke, Alph. List Cit. 2: 328, 332, 339, 342, 419, 429, 448, 459, 540, & 541 (1948) and 3: 659, 664, 691, 714, 715, 900, 901, 926, 963, 1022, 1066, & 1152. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29 & 179. 1949; Matuda, Am. Midl. Nat. 44: 575. 1950; Moldenke, Phytologia 4: 68. 1952; Moldenke, Inform. Set 48 Spec. [2]. 1954.

Shrub or tree, to 17 m. tall; branchlets medium or stoutish, obtusely or acutely tetragonal, very medullose, densely furfuraeous-tomentose with cinereous or ochraceous stellate hairs; nodes annulate; principal internodes 3.5--9.2 cm. long; leaves decussate-opposite, borne on stout, ascending, tomentose sterigmata 1--5 mm. long; petioles stout, 0.9--2.5 cm. long, canaliculate above, densely stellate-tomentose; leaf-blades very firmly chartaceous, membranous when immature, dark-green and very shiny above, much lighter beneath, oblong or ovoid, 10--23.5 cm. long, 3.4--8.1 cm. wide, acuminate at the apex, entire, often very slightly revolute along the margins in drying, usually broadly rounded at the base, rarely acute or even subcuneate, slightly prolonged into the petiole and there bearing a pair of rather inconspicuous black glands, glabrous above except for the tomentose midrib, very densely floccose-tomentose with incanous or ochraceous hairs beneath; midrib stout, more or less impressed and tomentose above, very prominent beneath; secondaries slender, 6--8 pairs, arcuate-ascending, more or less impressed above, prominent beneath; vein and veinlet reticulation abundant, conspicuous above (the larger parts often subimpressed, the remainder slightly prominulous), obscured by the pubescence beneath; racemes axillary in the uppermost axils and terminal, the axillary ones simple, the terminal ones sometimes compound with a pair of lateral branches as long as the central one (the lateral branches often also bearing a pair of secondary branches), long and slender, erect to nutant or pendent, 14--50 cm. long, 1--1.5 cm. wide, densely many-flowered; peduncles slender or stout, often abbreviated, 1--4 cm. long, densely short-tomentose, mostly nodose, bearing bracts or bractlets and buds at the nodes; rachis slender or stoutish, densely short-tomentose; pedicels slender or stout, 1--2.5 mm. long, short-tomentose, sometimes almost obsolete; bracts often present, large and foliaceous; bractlets small, linear or ovate, 1--4 mm. long, densely tomentose; prophylla linear, 1--2 mm. long, short-tomentose; flowers small, often sessile, alternate, more densely crowded than in most members of the genus; calyx urceolate-obconic, about 3 mm. long, membranous, 5-nerved, hirtellous, its rim 5-dentate, the teeth broadly triangular, acute at the apex; corolla white, its tube obconic, about 4

mm. long, barbate-villous in the throat and at the insertion of the stamens within, the limb small, pubescent on both surfaces, the lobes unequal, spreading, elliptic, obtuse at the apex, two smaller and shorter than the rest; stamens 4, inserted low in the corolla-tube, subequal, scarcely didynamous, included, the fifth rudimentary, inserted opposite the sinus of the smaller corolla-lobes; filaments rather long, ciliate; anthers ovate; style slender, equaling the stamens, glabrous; stigma thickened, emarginate; ovary obovate, glabrous; fruiting-calyx very shallowly cupuliform, about 2.5 mm. long and 6 mm. wide, lightly tomentose or pubescent, 5-ribbed, its rim subentire or shortly 5-apiculate; fruit oblong, about 9 mm. long and 7 mm. wide, fleshy, pale-green when immature, shiny, glabrous, 2-sulcate in drying.

The type of this distinctive species was collected by Martín Sessé y Lacasta, José Mariano Mociffo, Juan Diego del Castillo, and José Maldonado (no. 2375) somewhere in Mexico before 1809, and is deposited in the herbarium of the Jardín Botánico at Madrid. The type of *C. rugendasii* was collected by Christian Julius Wilhelm Schiede (no. 84) at Jalapa, Vera Cruz, Mexico, before 1833, and is deposited in the herbarium of the Botanisches Museum at Berlin. It is named in honor of Johann Moritz Rugendas (1799--?), German artist who accompanied Langsdorff in Brazil from 1821 to 1825, then resided in Italy and Sicily from 1827 to 1829, returning to South America and traveling there from 1831 to 1846. It has shorter and more slender racemes than are seen on the majority of other specimens examined and is almost the only collection that has the terminal inflorescences decidedly compound.

The type of *C. rugendasii* var. *endlichii* was collected by Rudolf Endlich (no. 1546) -- in whose honor it was named -- in rainforests at 450 meters altitude at Monte Paeho, near Jalapa, Vera Cruz, on February 1, 1907, and is deposited in the herbarium of the Botanisches Museum at Berlin. Loesener's description, placed on the type sheet in September, 1910, reads as follows: "foliis tenioribus basi acutis vel cuneatis a type recedens". Its leaf-blades are membranous and acute or subcuneate at the base and the pubescence is slightly sparser. It appears to me, however, to be an immature specimen and was collected in exactly the same locality as *Endlich 1518*, which is typical *C. mocinni*.

The *McVaugh 12092* collection has its racemes all solitary and much elongated, about 50 cm. long, on all the seven specimens seen, with no side branches at all at any time. In general, the long racemes, taken with the mostly ovoid and greatly elongated acuminate leaf-blades and dense tomentose pubescence on the lower leaf-surface, characterize this species very well. Schauer states that *C. mocinni* differs from *C. rugendasii* only in its nodding racemes.

The species has been collected in open forests, rainforests, cloud forests, woods and virgin forests, damp forests, wet ravines, and hills, from 1350 to 2800 meters altitude, blooming from November through February and in April, July, and September, and in fruit from December to February and in May. Galeotti descri-

bes the species as rare in the Cordillera of Vera Cruz, where it ascends to 4000 feet altitude and is said to bloom from June to October. Hinton also describes it as "rare". His nos. 5393 and 8744 were taken from the selfsame plant, according to his own notes.

Material of this species has been confused in herbaria with C. tomentosum H.B.K. [= C. kunthianum Moldenke] of northern South America, and Steudel actually says that "Citharexylum regundasii" is native to Brazil! This is completely incorrect. The C. moldenkeanum Standl. reduced to synonymy under C. mocinni by me in my Prelim. Alph. List Invalid Names 17 (1940), actually belongs with var. longibracteolatum Moldenke. It should be pointed out that up to March, 1942, I regarded "mocini" as the correct spelling for the specific part of the accepted name for this species, following Schauer, and so spelled it in all my publications and on all annotation labels. Since then, however, I have adopted the original spelling, "mocinni", because I see no valid reason for changing this under the pretext of "correcting" it.

In all, 78 herbarium specimens, including the types of all the names involved, and 13 mounted photographs have been examined.

Citations: MEXICO: Chiapas: Matuda 1884 (Dr, Mh, Mi, N, N, N), 4537 (E-1214213, Ld, Me, Mh, N). Durango: Linden s.n. [Pueblo Nuevo] (P). México: Hinton 5393 (E-1102069, E-1208070, K, N), 6057 (E-1102068, K, Me, N, N), 8393 (Me), 8744 (Au, F-878774, F-878778, Fs, K, Me, N, N, N); Stanton 8744 (Mi). Nayarit: Mc Vaugh 12092 (Le, Mi, Mi, Mi, Mi, Mi, Mi). Vera Cruz: Botteri 244 (G); Bourgeau 3115 (Br, P, P, P, P, W-209522); Endlich 1518 (B), 1546 (B, K-photo, N-photo, S-photo, Z-photo); Galeotti 7121 (Br, Br, P); Liebmann 11304 (Cp, Cp, N), 15489 (Cp, F-689261, W-1492786), 15490 (Cp); M. Martens s.n. [prov. Jalapa] (Br); Schiede 84 [Macbride photos 17599] (B, E-119061, E-119062, F-663028 --photo, K-photo, Kr-photo, L, L, M, N-photo, N-photo, P, S-photo, V-285054, Z-photo), 2128, in part (S), s.n. [pr. Veracruz] (L); Schiede & Deppe s.n. [Jalapa] (Bm, Cb). State undetermined: Collector undesignated s.n. [Tropic. Mexico] (Dr); Herb. Pavon s.n. (X); Sessé, Mociffo, Castillo, & Maldonado 2375 (F-851476--isotype, N-photo of type, Q-type, Q-isotype, Q-isotype, Q-isotype, Z-photo of type).

CITHAREXYLUM MOCINNI var. LONGIBRACTEOLATUM Moldenke, Phytologia 1: 415 [as "mocini"]. 1940; Alph. List Invalid Names 58.1942

Synonymy: Citharexylum moldenkeanum Standl. ex Moldenke, Prelim. Alph. List Invalid Names 17, in syn. 1940. Citharexylum mocini var. longibracteatum Moldenke apud Matuda, Am. Midl. Nat. 44: 575, sphalm. 1950. Citharexylum mocinnii var. longibracteatum Moldenke, in herb.

Literature: Moldenke, Phytologia 1: 415. 1940; Moldenke, Prelim. Alph. List Invalid Names 17. 1940; Moldenke, Suppl. List In-

valid Names 11. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16, 19, 21, 80, & 88. 1942; Moldenke, Alph. List Invalid Names 44 & 58. 1942; Moldenke, Known Geogr. Distrib. Verbenac. Suppl. 1: 3. 1943; Moldenke, Alph. List Invalid Names Suppl. 1: 5. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 73. 1948; Moldenke, Alph. List Cit. 2: 340, 348, 349, 351, & 429 (1948), 3: 714, 715, 961, & 973 (1949), and 4: 1152. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29, 35, 37, & 179. 1949; Matuda, Am. Midl. Nat. 44: 575. 1950.

This variety differs from the typical form of the species in having the bractlets of its flowering racemes linear or narrowly spatulate, 4-10 mm. long, elongating in fruiting racemes to 25 mm. and then even more conspicuous, persistent.

It is said to be a shrub or small tree, to 15 m. tall, the trunk to 70 cm. in diameter; stems green, covered with gray puberulence; leaves soft in texture, the blades subcoriaceous, varying from bright grass-green or yellow gray-green to dull-green or dark-green above, varying from gray-buff-green or buff-yellowish-green to buff-silvery-gray or pale-green beneath; inflorescence nodding; peduncles pale-green, nodding; flowers fragrant; calyx rich-green; corolla white, its tube greenish, the lobes spreading; fruit ovoid, orange-colored, obtuse at the apex, shiny.

The type of the variety was collected by Eizi Matuda (no. S. 181) on Mount Pasitar, Chiapas, Mexico, on December 28, 1936, and is deposited in the Britton Herbarium at the New York Botanical Garden. It has been found in damp forests, open forests, wet ravines, and mixed pine-hardwood barrancas, at altitudes of 1350 to 3000 meters, in flower from November through February, and in fruit in February. Matuda 2663 in the Chicago herbarium has the bractlets very long in the main raceme, but much shorter in the side racemes. C. moldenkeanum of Standley was at first regarded by me as typical C. mocinni and was so cited by me until 1940. It is now obvious that this taxon is identical with the variety here under discussion.

In all, 27 herbarium specimens, including the types of all the names involved, have been examined.

Citations: MEXICO: Chiapas: Matuda 408 (E--1278351, Mh, N), 2663 (F--1004897, Mh, Mi, Mi, N), 3923 (E--1195658, Mh, Mi, N), 16264 (N, N), S.181 (E--1126429--isotype, Mi--isotype, N--type). GUATEMALA: Quetzaltenango: Steyermark 33979 (F--1049090). Sacatepéquez: P. C. Standley 63700 (F--984949, F--984958, N). San Marcos: Steyermark 36608 (F--1056597), 36720 (F--1041193, N), 36856 (F--1041194).

CITHAREXYLUM MONTANUM Moldenke in Fedde, Repert. 37: 231-232. 1934.

Literature: Moldenke in Fedde, Repert. 37: 231-232. 1934; Hill, Ind. Kew. Suppl. 9: 67. 1938; Moldenke, Geogr. Distrib. Avicenn. 19 & 22. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 31, 33, 71, & 88. 1942; Moldenke, Alph. List Cit. 1: 133

(1946), 2: 335, 336, & 611 (1948), 3: 857 (1949), and 4: 1001, 1060, & 1078. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 59, 69, 157, & 179. 1949; Moldenke, *Phytologia* 4: 451. 1953; *Biol. Abstr.* 27: 3372. 1955.

Tree, to 12 m. tall; branches extremely stout and robust; branchlets and twigs very stout, obtusely tetragonal, often more or less flattened and ampliate at the nodes, gray or brown, medullose, densely furfuraceous-tomentose with incanous or flavescent hairs; nodes annulate; principal internodes 3--6.6 cm. long; leaves decussate-opposite; leaf-scars extremely large, often rectangular, borne on very short ascending or appressed sterigmata; petioles very stout, 1.5--3 cm. long, rugate in drying, ampliate and elongate at the base, very densely flavescent- and furfuraceous-tomentose; leaf-blades thick and firm, subcoriaceous, oblong, 6.3--20.5 cm. long, 2.9--8 cm. wide, acute or short-acuminate at the apex, entire, rounded and obtuse at the base or acute, mostly bearing a pair of inconspicuous glands at the very base, sparsely furfuraceous above when immature, glabrous when mature, always extremely densely furfuraceous-tomentose with flavescent hairs beneath; midrib very stout, more or less impressed above, very prominent and often rugate beneath; secondaries numerous, slender, 11--16 pairs, regular, arcuate-ascending, plane or very slightly impressed above, prominent beneath; vein and veinlet reticulation very slightly impressed or obscure above, mostly hidden by the tomentum beneath; racemes axillary and terminal, erect or nutant, extremely stout and robust, simple, 6.5--12.5 cm. long, 1--2 cm. wide (in bud), extremely densely many-flowered; peduncles very stout, 1--2 cm. long, densely tomentose; rachis extremely stout and robust, densely furfuraceous-tomentose with incanous or flavescent hairs; pedicels very stout and sterigma-like, to 1 mm. long, very densely white-tomentose; bracts and bractlets absent; prophylla very abundant and often conspicuous, linear, 1--4 mm. long, tomentose; calyx tubular, about 6 mm. long and 2.6 mm. wide, densely ferruginous-tomentose, bilabiate, the 2 sinuses acute and about 2.6 mm. deep, one lip often not lobed and the other 2-lobed; corolla greenish-white or white, hypocrateriform, its tube broadly suburceolate, about 5.2 mm. long, about 1.3 mm. wide at the base and to 3.1 mm. wide above the middle, slightly narrowed at the apex, externally glabrous, densely pilose in the throat within, the limb 5-parted, the lobes variable in size, oblong or ovate-lingulate, about 2.8 mm. long and 2.6 mm. wide, acute at the apex; stamens 4, subequal, inserted about 3.1 mm. below the mouth of the corolla-tube, included; filaments about 1 mm. long; anthers oblong, about 2 mm. long and 0.5 mm. wide; pistil included; style thick, about 1.3 mm. long; stigma to 0.9 mm. wide, very shortly 2-lobed, the lobes about 0.3 mm. long; ovary obovate, about 1.5 mm. long and 1.3 mm. wide, glabrous; fruiting-calyx and fruit not known.

The type of this species was collected by Ellsworth Paine Kilip and Albert Charles Smith (no. 16955) at the edge of woods in the vicinity of California, at an altitude of 2800 meters, Santander, Colombia, in the eastern cordillera, between January 11

and 27, 1927, and is deposited in the Britton Herbarium at the New York Botanical Garden. The collectors describe it as a tree 15--20 feet tall. It has been collected at altitudes of 1800 to 2800 meters, in anthesis from December through March. The flowers apparently fall off very easily, because on all specimens examined most of the individual flowers had fallen off, leaving the lower part of the racemes devoid of flowers and thus exposing and rendering conspicuous the large prophylla. In all, 12 herbarium specimens, including the type, and 5 mounted photographs have been examined.

Citations: COLOMBIA: Antioquia: Toro 964 (Fn--1667, N). Santander: Killip & Smith 16955 (B--photo of type, F--762341--isotype, G--isotype, K--photo of type, N--type, N--photo of type, S--photo of type, W--1352630--isotype, Z--photo of type). ECUADOR: Napo--Pastaza: Asplund 10159 (S, S). Province undetermined: Rimbach 169 (F--717110, N). CULTIVATED: Colombia: Cuatrecasas 13550 (N, W--1851382).

CITHAREXYLUM MONTANUM var. CHIMBORAZENSE Moldenke, Phytologia 3: 286, nom. nud. (1950) & 4: 175. 1953.

Literature: Moldenke, Phytologia 3: 286 (1950) & 4: 175. 1953; Moldenke, Mem. N. Y. Bot. Gard. 9: 176. 1955; Biol. Abstr. 27: 3372. 1955.

This variety differs from the typical form of the species in having its inflorescences very loosely few-flowered.

The type of the variety was collected by Wendell Holmes Camp (no. E.3455) in moist forested valleys in the afternoon-fog belt, cañon of the Río Chanchan, about 5 km. north of Huigra, at an altitude of 5000 to 6500 feet, Chimborazo, Ecuador, between May 19 and 28, 1945, and is deposited in the Britton Herbarium at the New York Botanical Garden. It is known thus far only from the type specimen.

Citations: ECUADOR: Chimborazo: Camp E.3455 (N--type).

CITHAREXYLUM MONTEVIDENSE (Spreng.) Moldenke, Phytologia 1: 17. 1933.

Synonymy: Ehretia montevidensis Spreng. in L., Syst. Veg., ed. 16, 1: 647. 1825. Citharexylum barbinerve Cham., Linnaea 7: 116--117. 1832. Citharexylon barbinerve Cham. ex Steud., Nom. Bot., ed. 2, 1: 375. 1840. Citharexylon scarbinerve Steud., Nom. Bot., ed. 2, 1: 543, sphalm. 1840. Citharexylon barbinerve Cham. & Schlecht. ex Arechavaleta, Ann. Mus. Montevid. 4: 151, pl. 1. 1903. Rauwolfia bilabiata Larrañ., Escritos D. A. Larrañ. 2: 85. 1923. Rauwolfia arborea Larrañ., Escritos D. A. Larrañ. Atlas 1: pl. 132. 1927. Citharexylon montevidense (Spreng.) Moldenke ex Herter, Beih. Bot. Centralbl. 59: 275. 1939. Cytharexylum montevidense (Spreng.) Moldenke apud Doello-Jurado, Physis 19: 406, sphalm. 1943. Citarexylon montevidense (Spreng.) Moldenke apud Cabrera & Dawson, Rev. Mus. La Plata, new ser., sec. bot.,

5: 278, fig. 3c, sphalm. 1944. Cytarexylon montevidense (Spreng.) Moldenke apud Cabrera & Dawson, Rev. Mus. La Plata, new ser., sec. bot., 5: 356 & 378, pl. 6, fig. 1, sphalm. 1944. Citharexylum barbinervi Cham. ex Moldenke, Alph. List Invalid Names Suppl. 1: 5, in syn. 1947. Cytharexylon montevidense (Spreng.) Moldenke apud Cabrera, Lilloa 20: cuadro iv, sphalm. 1949. Citharerexilom montevidense Cham., in herb. Cytharexylon barbinerve Cham., in herb.

Literature: Spreng. in L., Syst. Veg., ed. 16, 1: 647. 1825; Cham., Linnaea 7: 116--117. 1832; Steud., Nom. Bot., ed. 2, 1: 375 & 543. 1840; Walp., Repert. 4: 72--73. 1845; Schau. in A. DC., Prodr. 11: 610. 1847; Schau. in Mart., Fl. Bras. 9: 267--268. 1851; Gibert, Enum. Pl. Montev. 45. 1873; Jacks., Ind. Kew. 1: 549 & 823. 1893; Arechavaleta, Ann. Mus. Montevid. 4: 151, pl. 1. 1903; Briq., Ann. Conserv. & Jard. Bot. Genève. 7--8: 318. 1904; Lillo, Cont. Con. Arboles Argent. 104. 1910; Glaz., Bull. Soc. Bot. France Mém. 3: 545. 1911; Molfino, Flora Esp. 285. 1921; Larrafi., Escritos D. A. Larrafi. 2: 85 (1923) and Atlas 1: pl. 132. 1927; Herter, Anal. Mus. Hist. Nat. Montevid., ser. 2, 2: 418--419. 1928; Herter, Flórmula Urug. Pl. Vasc. 104. 1930; Stapf, Ind. Lond. 2: 220. 1930; Moldenke, Phytologia 1: 17. 1933; Parodi, Rev. Argent. Agron. 1: 200. 1934; Molfino, Trab. Inst. Bot. & Farm. Buenos Aires 53: 57. 1935; Latzina, Trab. Inst. Bot. & Farm. Buenos Aires 54: 78 & 112. 1935; Troncoso, Darwiniana 3: 56. 1937; Latzina, Lilloa 1: 188. 1937; Herter, Revist. Sudam. Bot. 4: 185. 1937; Hill, Ind. Kew. Suppl. 9: 67. 1938; Moldenke, Alph. List Common Names 2, 11, 22, & 29. 1939; Moldenke, Geogr. Distrib. Avicenn. 25, 28, 29, & 36. 1939; Herter, Beih. Bot. Centralbl. 59: 275. 1939; Parodi, Darwiniana 4: 55. 1940; Moldenke, Prelim. Alph. List Invalid Names 15, 16, & 25. 1940; Moldenke, Lilloa 6: 317--318 (1941) and 8: 414. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 36, 40--42, 71, & 88. 1942; Moldenke, Alph. List Invalid Names 13, 14, & 24. 1942; A. Schultz, Introd. Estud. Bot. Sist., ed. 2, 483, 484, & 535. 1943; Doello-Jurado, Physis 19: 405--406. 1943; Doello-Jurado, Algos Mas Sobre Prot. Nat. 6--7. 1943; Rosengurtt, Estud. Prad. Nat. Urug. 3: 84 & 234. 1943; Cabrera & Dawson, Rev. Mus. La Plata, new ser., sec. bot., 5: 278, fig. 3c, 356, & 378, pl. 6, fig. 1. 1944; Moldenke, Phytologia 2: 97. 1944; Augusto, Fl. Rio Grande do Sul 229 & 236. 1946; Moldenke, Alph. List Cit. 1: 12, 27, 39, 50, 80, 83, 86, 120, 128, 136, 215, 226, & 234. 1946; Moldenke, Phytologia 2: 346. 1947; Lombardo, Fl. Arb. Arbores. Urug. 186--187 & 203. 1947; Moldenke, Alph. List Invalid Names Suppl. 1: 5 & 8. 1947; Moldenke, Castanea 13: 121. 1948; Van Rensselaer, Trees of Santa Barbara, rev. ed., 163. 1948; Moldenke, Alph. List Cit. 2: 328, 343, 349, 370, 372, 403, 441, 442, 448, 457, 485, 500, 533, & 581 (1948), 3: 690, 703, 704, 748, 764, 772, 798, 809, 844, 848, 862, 863, 865, 890, 896, 897, 920--922, & 953 (1949), and 4: 980, 1010, 1013, 1069, 1070, 1072, 1080, 1088, 1089, 1104, 1106, 1166, 1172, 1176, 1179, 1253, & 1294. 1949; Cabrera, Lilloa 20: 321 & cuadro iv. 1949; Moldenke,

Known Geogr. Distrib. Verbenac., [ed. 2], 76, 98, 100, 103, 157 & 179. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 4. 1949; Stellfeld, Trib. Farmac. 19 (10): 169. 1951; Moldenke, Journ. Calif. Hort. Soc. 15: 85. 1954; Lombardo, Invent. Pl. Cult. Montevid. 67 & 266. 1954; Rambo, Sellowia 6: 59 & 84. 1954; Menninger, 1955 Price List 5 (1954) and 1956 Price List [4]. 1955.

Illustrations: Arechavaleta, Ann. Mus. Montevid. 4: 151, pl. 1. 1903; Larrañ., Escritos D. A. Larrañ. Atlas 1: pl. 132. 1927; Cabrera & Dawson, Rev. Mus. La Plata, new ser., sec. bot., 5: fig. 3c & pl. 6, fig. 1. 1944.

Tall shrub or tree, to 15 m. tall; trunk erect, to 50 cm. in diameter; branches and branchlets stoutish or medium, woody, light-gray, obtusely tetragonal, glabrate, armed with a pair of stout spines 3--25 mm. long above each principal internode, the spines often to 6 mm. wide at their base and always very sharp-pointed; twigs slender, mostly unarmed; nodes obscurely or not at all annulate; principal internodes 1--4.3 cm. long; leaf-scars borne on prominent and divergent, stout, corky, glabrate strigimata 1--3 mm. long; leaves decussate-opposite, persistent; petioles very slender, 4--8 mm. long, subglabrate; leaf-blades firmly chartaceous, dark-green above, lighter beneath, shiny on both surfaces, narrowly oblong or oblong-elliptic to elliptic, 2.7--12 cm. long, 1.5--3.8 cm. wide, rounded or subacute (rarely retuse) at the apex, entire or with a very few tooth-like projections near the apex, cuneately attenuate at the base, usually bearing a pair of small and inconspicuous glands at the base, glabrous or subglabrate above, pulverulent or subglabrate beneath and densely tomentose-barbellate with white hairs in the axils of the secondaries and sometimes along the midrib beneath; midrib very slender, plane or prominent above, prominent beneath; secondaries slender, 5--7 pairs, ascending, usually not very much arcuate except at their apex, slightly prominent on both surfaces, obscurely or not at all anastomosing; vein and veinlet reticulation abundant, slightly prominent on both surfaces, especially above; racemes numerous, terminating the twigs, rarely axillary, 4--13 cm. long, 1--1.7 cm. wide, erect or nutant, many-flowered, simple; peduncles very slender, 5--7 mm. long, strigillose or subglabrate; rachis very slender, strigillose or subglabrate; pedicels obsolete or to 1 mm. long; bracts and bractlets absent; prophylla minute, setaceous; flowers fragrant, subsessile, solitary or pseudo-opposite, with paired ones rarely interspersed; calyx urceolate-campanulate or cyathiform, membranous, slightly 5-nerved, pubescent on both surfaces, about 4 mm. long, the external pubescence short and rather patulous, the rim very variable, irregularly 5-fid or -dentate, the teeth rounded, two of them about 2 mm. long; corolla varying from creamy-white or cream-colored to yellowish, pale-yellow, or yellow, hypocrateriform or obconic-campanulate, externally glabrous, villous (especially in the throat) within, the tube obconic, as long as the calyx, the limb 5-parted, about 6 mm. wide, subregular, the lobes linear or subelliptic, twice as long as wide, patent, very obtuse or rounded at the apex, ciliate-margined; stamens 5, inserted in the corol-

la-tube beneath the sinuses of the limb, subequal; filaments short or very short; anthers sagittate, erect, reaching the sinuses of the corolla-limb; style short, glabrous, included; stigma emarginate; ovary ovoid, 2-celled, 4-ovulate; fruiting-calyx cupuliform, indurated, about 4 mm. long and 7 mm. wide, ribbed, glabrate, the margin shallowly and irregularly erose or deeply 5-lobed with rounded lobes; fruit fleshy, oblong, varying from red, vivid-red, reddish, or rose-colored to blackish, usually black in drying, about 10 mm. long and 8 mm. wide, glabrous, greatly wrinkled in drying.

The type of this species was collected by Friedrich Sellow at Montevideo, Uruguay, and is deposited in the herbarium of the Botanisches Museum at Berlin. C. barbinerve is also based on several collections of Sellow in Uruguay and in Santa Catarina, Brazil ["e provincia Cisplatina nec non e Brasilia tropica misit Sellowius noster"]. Chamisso claimed that the species is related to C. villosum Jacq. [= C. fruticosum var. villosum (Jacq.) O. E. Schulz], C. molle H.B.K., and C. cinereum L. [= C. fruticosum L.], but differing from all of these in the form of the leaves, the barbate vein-axils, and the presence of spines. It inhabits marshy and swampy woods, the margins of forests, and streamsides, ascending from sea-level to 450 m. altitude. It has been collected in anthesis from August to April and in June, and in fruit from January to March and in May.

Parodi, in the 1934 reference cited above, says "Arbol de 5 a 8 m de altura, con hojas persistentes, originario del sur del Brasil, Uruguay y Noreste argentino hasta el Delta paranense. Es muy apropiado para ser cultivado en plazas y paseos; crece muy bien en Buenos Aires. Existe una avenida arbolada con esta especie en el Parque 3 de Febrero, y ejemplares dispersos en otros paseos y plazas de la Capital Federal."

Balansa on his collectio no. 2095 says that the fruits are red, while on his no. 3127 that they are black. Briquet points out that this is probably only due to the degree of maturity of the fruit, because the collections are otherwise identical. Rosengurt reports that the species is a constituent of the riverside woods in Uruguay. Pictures of sterile and fertile twigs are seen in Arechavaleta's paper, cited above. The Fröderström collection listed below consists of seeds only. Dentate leaves are seen on Herter 94760 in the Britton Herbarium at New York. A splendid photograph of the trunk of this tree is published by Cabrera & Dawson on plate 6, fig. 1, of the 1944 article cited above. These authors describe the bark as "cubierto de corteza de color gris blanquecino agrietada longitudinalmente". According to Doello-Jurado this is the "arbol sin nombre" mentioned by W. H. Hudson in his famous book entitled "Far Away and Long Ago" [Spanish edition, "Allá Lejos y Hace Tiempo", Buenos Aires, 1938] as occurring in the park of Rancho de Hudson. At Punta Lara the tree propagates itself by seeds and also by "raíces gemíferas horizontales".

It is worthy of note that some of the racemes are quite

loosely-flowered, while others are very densely-flowered; the flowers on the latter are also much smaller. Archer reports that it produces a very hard lumber. Menninger says that it "should be hardy throughout Florida". He charges \$1 for a 12-inch seedling. Besides the cultivated records cited below, the species is reported as being cultivated in France. It has been confused in herbaria with Vitex montevidensis Cham. [= V. megapotamica (Spreng) Moldenke], due, undoubtedly, to the similarity in the specific epithet and accreditation and not to any remote resemblance between the two plants, C. spinosum H.B.K. [= C. flexuosum (Ruiz & Pav.) D. Don], C. myrianthum Cham., and C. cinereum L. [= C. fruticosum L.]. Schultz, in the reference cited above, actually adopts C. cinereum as the valid name for the plant and gives C. barbinerve as a synonym!

Glaziou 9540 is designated on its printed labels as being from the vicinity of Rio de Janeiro, but is cited by the collector himself in the published report on his collections as having been collected at Campos da Bocaina, in the state of São Paulo, Brazil.

Common names reported for the species are "aguay-guazú", "arbol de la sal", "espina de bañado", "espino de los bañados", "naranja de bañado", "naraujillo", "taruma", "tarumá", "tarumá espirudo", "tarumã de espinho", "tarumã-de-espinho", "taruman", "tarumán", "taruman con espinas", "taruman de espina", "taruman espinoso", and "Uruguay fiddlewood". The name "taruman con espinas" is used to differentiate the tree from the "taruman sin espinas", which is Prunus sphaerocarpa Sw. The name "taruma" is also applied to members of the genus Vitex Tourn. generally and to V. excelsa Moldenke specifically, and "tarumá" to V. cymosa Bert., V. duckei Huber, V. megapotamica (Spreng.) Moldenke, V. pseudolea Rusby, V. triflora Vahl, and V. triflora var. coriacea Huber, while "taruman" is also applied to V. duckei, V. megapotamica, V. flavens H.B.K., V. polygama Cham., and V. sellowiana Cham. Herter seems to imply that the "Rauwolfia" species of Larrañaga belong here, and, in a letter received from him by me shortly before his death, he confirms this.

In all, 178 herbarium specimens, including the types of most of the names involved, and 16 mounted photographs have been examined.

Citations: BRAZIL: Minas Gerais: Warming s.n. [Lagoa Santo] (Cp). Paraná: Tweedie s.n. (K, K, L), Rio Grande do Sul: Gaudichaud 502 (P), 503 (P), 505 (P); Henz 29666 (N); Jürgenz 53 (B); Malme 359 (S, S), 400 (N, S, Us), 534b (S, S), 950 (Lu, S); Rambo 43323 (N); Reineck & Czermak 494 (P, P); Saint-Hilaire C². 1843 ter (P, P), C². 2653 bis (P, P). Santa Catarina: Sellow 379 (B, B, B, B, N), 1421 (B, B, B), 1879 [Macbride photos 17591, in part] (B, B, F--663020--photo, Kr--photo, N--photo), 1932 (N), 2310 (B), s.n. [Brasil merid.] (B, B--photo, Em, Dc, K, K--photo, N, N--photo, P, S--photo, V, V, V--285033, Z--photo), s. n. [Brasilia; Macbride photos 17591, in part] (F--663020--photo,

F-999009, Kr-photo, L, Le, N-photo, S, Us). São Paulo: Glaziou 9540 (B, Br, Cb, Cp, F-538615, Gg-162565, K, L, P); Regnell 276 (Ja-32244). PARAGUAY: Anisits 1872 (S); Balansa 2095 (Cb, K, P, P), 3127 (P, X). URUGUAY: Arechavaleta 39 (Cb, Cb), 42 (Cb, Cb, Cb, Ug, Ug), 280 (Cb, Cb, Cb, Ug), s.n. [flowers; Herb. Osten 3754. in part] (Cp-photo, Cp-photo, Ug), s.n. [fruit; Herb. Osten 3754. in part] (Ug); H. H. Bartlett 21330 (Ca-772374, W-1907624); Berro 801 (N, X); Castellanos s.n. [Herb. Inst. Miguel Lillo 1176] (N); Courbon 220 (P, P); Fruchard s.n. [X.1876] (P), s.n. [1 Jan. 1877] (P, P, P); Gibert 33 (K), 40 (K); Herter 3514 [Herb. Osten 20948] (Ug), 94760 (N), s.n. [Herb. Osten 18988] (Ug); Legrand 508 (F-1004197, Ug), 687 (Ug); Naudin s.n. (A, A); Rosa-Mato 802 (Ug-9805); Schröder s.n. [Herb. Osten 15505] (Ug); Sellow 3185 (B-type, B-isotype, B-isotype, K-photo of type, N-photo of type, P-isotype, S-photo of type, Z-photo of type); Spegazzini s.n. [1892] (Br); Stuckert 8282 (Cb); Tweedie s.n. [Misiones of the Uruguay] (L). ARGENTINA: Buenos Aires: Archer 4580 (W-1691995); Black & Fröes 51-11436 (Z); Cabrera 1916 (N), 1988 (N), 2502 (F-670066, N, N, S, S, W-1574519), 6359 (N, N); Commerson s.n. [Herb. Jussieu 5103] (P); Scala 805 (N), 887 (N), s.n. [Arroyo Tuyuparé; Herb. Inst. Biol. 37394] (N, Sp), s.n. [Paraná Mini] (N, Ug), s.n. [Río Chana] (N, S, Ug). Corrientes: Niederlein 1571 (B); Venturi 433 (N). Entre Ríos: Burkart 8315 (F-900211, N). Isla Martín García: Pastore 275 (N); Perez Moreau s.n. [Herb. Mus. Argent. Cienc. Nat. 7189] (N). Misiones: Bertoni 1888 (N, S), 2654 (N), 5643 (N); Grüner 1218 [Herb. Osten 23184] (N, Ug); Niederlein 509 (B), s.n. [Santa Ana, Loreto] (B); D. Rodriguez 22 [9.XII.1909; Herb. Inst. Miguel Lillo 10005] (N), 22 [11.IX.1912] (N), 440 [Herb. Mus. Argent. Cienc. Nat. 16283] (N), s.n. [Herb. Mus. Argent. Cienc. Nat. 23946] (N). Tucumán: Venturi 4077 (A, N, W-1591432). CULTIVATED: Argentina: Curran 46 (Y); Herb. Jard. Bot. Buenos Aires s.n. [Herb. Argentino] (Ca-202202); Parodi 12248 (N, N), 12249 (N); Troncoso 352 (N), s.n. [26.IX.1936] (N). California: Mrs. A. Blake s.n. [Berkeley, May 20, 1940] (Gg-275970); Bolton s.n. [Hueneme, Sept. 1924] (Gg-34492); Eastwood s.n. [Hueneme, April 18, 1916] (Gg-31074), s.n. [Montecito, Nov. 8, 1923] (Gg-31065); Herb. Calif. Acad. Sci. 162167 (Gg); R. Moran 2655 (Ba); Walther s.n. [San Francisco, Dec. 1919] (Gg-31066), s.n. [San Francisco, July 9, 1920] (Gg-31067). India: Raizada s.n. [New Forest, Dehra Dun, April 1937] (N). Uruguay: Fröderström s.n. [Jardin Botanico, Montevideo, 1939] (S). LOCALITY OF COLLECTION UNDESIGNATED: Bonpland s.n. (P); Collector undesignated s.n. (Ug, Ug, Ug, Ug, Ug); Gruetum s.n. [Juni 1877] (B); Leguerré s.n. (P, P).

CITHAREXYLUM MUCRONATUM Fourn. & Moldenke ex Moldenke in Fedde, Repert. 37: 232. 1934.

Synonymy: Citharexylon mucronatum Fourn. ex Moldenke, Prelim. Alph. List Invalid Names 15, in syn. 1940.

Literature: Moldenke in Fedde, Repert. 37: 232. 1934; Hill, Ind. Kew. Suppl. 9: 67. 1938; Moldenke, Geogr. Distrib. Avicenn. 16. 1939; Moldenke, Prelim. Alph. List Invalid Names 15. 1940; Moldenke, Alph. List Invalid Names 13. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 22 & 88. 1942; Moldenke, Alph. List Cit. 2: 337 & 349 (1948) and 3: 658 & 694. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 38 & 179. 1949.

Shrub or tree; branchlets and twigs slender, light-brown, ribbed, rather sharply tetragonal, subglabrate; nodes not annulate; principal internodes 1.4--2.5 cm. long; leaf-scars borne on very short ascending sterigmata 1--2 mm. long; leaves decussate-opposite or subopposite; petioles slender, 7--10 mm. long, glabrous; leaf-blades chartaceous, rather uniformly dark-green on both surfaces, very narrowly oblong, 7--12 cm. long, 1.7--2.3 cm. wide, rounded to a cucullate and mucronate apex, entire, cuneately narrowed at the base, pronouncedly revolute for a short distance at the base and there bearing a pair of elongated glands which are completely hidden by the inrolled margins, glabrate and densely impressed-punctate on both surfaces; midrib slender, prominent on both surfaces; secondaries very slender, 4 or 5 pairs, distant, short, arcuate-ascending, not anastomosing, prominent beneath; vein and veinlet reticulation sparse, mostly obscure; racemes terminal, elongate, 15--22 cm. long, about 1 cm. wide, erect or nutant, extremely densely many-flowered, simple; peduncles slender, brown, 5--15 mm. long, glabrate; rachis slender, glabrate; pedicels very slender, 1--1.5 mm. long, glabrous; bracts and bractlets absent; prophylla linear, 1--2 mm. long; calyx campanulate, about 2.6 mm. long and wide, 5-costate, glabrate, the margin very shortly 5-apiculate or subentire; corolla (in bud) small, its tube broadly cylindric, about 2 mm. long, externally minutely puberulent, densely pilose in the throat within, the limb 5-parted, the lobes ovate-lingulate, variable in size, about 1.5 mm. long and 1.3 mm. wide, rounded at the apex; fertile stamens 4, subequal, inserted about 1 mm. below the mouth of the corolla-tube, included; filaments about 0.5 mm. long; anthers oblong-ovate, about 1.3 mm. long and 0.6 mm. wide; staminode small, about 0.2 mm. long; pistil included; style about 1.1 mm. long; stigma very shortly 2-lobed, about 0.5 mm. long; ovary obovate, about 0.7 mm. long and wide, glabrous; fruiting-calyx and fruit not known.

The type of this species was collected by Paul Lévy (no. 471) in a forest at Chontales, at an altitude of 600 meters, in the province of Chontales, Nicaragua, in June, 1870, and is deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris. Thus far, it is known only from the type collection. In all, 7 herbarium specimens, including the type, and 9 mounted photographs have been examined.

Citations: NICARAGUA: Chontales: Lévy 471 [Macbride photos

28396] (B—photo of type, Cb—iso-type, F—830268—photo of iso-type, F—998913—iso-type, K—photo of type, Kr—photo of iso-type, N—iso-type, N—photo of type, N—photo of iso-type, N—photo of type, P—type, P—iso-type, P—iso-type, S—photo of type, X—iso-type, Z—photo of type).

CITHAREXYLUM MYRIANTHUM Cham., *Linnaea* 7: 117—119. 1832.

Synonymy: *Citharexylum scabrum* Willd. ex Cham., *Linnaea* 7: 117, in syn. 1832 [not *C. scabrum* Sessé & Moc., 1831]. *Citharexylum myrianthum* Cham. apud Walp., *Repert.* 4: 77. 1845. *Citharexylum scabrum* Willd. apud Walp., *Repert.* 4: 77, in syn. 1845. *Citharexylum cinereum* Spreng. ex Schau. in Mart., *Fl. Bras.* 9: 269, in syn. 1851 [not *C. cinereum* L., 1763, nor *Citharexylum cinereum* L., 1767, nor *Citharexylum cinereum* Sessé & Moc., 1831, nor *Citharexylum cinereum* Jacq., 1909]. *Citharexylum cinereum* Spreng. apud Jacks., *Ind. Kew.* 1: 549, in syn. 1893. *Citharexylum myrianthum* var. *acuminatum* Briq., *Ann. Conserv. & Jard. Bot. Genève.* 7--8: 317. 1904. *Citharexylum macranthum* Hayek in Engl., *Bot. Jahrb.* 42: 170. 1908 [not *Citharexylum macranthum* Pittier, 1916]. *Citharexylum macranthum* Hayek apud Prain, *Ind. Kew. Suppl.* 4: 49. 1913. *Citharexylum myrianthum* Walp. ex Moldenke, *Prelim. Alph. List Invalid Names* 17, in syn. 1940. *Citharexylum myrianthum* var. *macranthum* (Hayek) Hassler ex Moldenke, *Prelim. Alph. List Invalid Names* 17, in syn. 1940. *Citharexylum plumieri* Otto ex Moldenke, *Prelim. Alph. List Invalid Names* 17, in syn. 1940 [not *Citharexylum plumerii* Plum., 1947]. *Citharexylum myrianthum* Cham. ex Raimondi, *Bol. Mus. Hist. Nat. Jav. Prado* 7: 245, sphalm. 1943. *Citharexylum mirianthum* Cham. ex Moldenke, *Alph. List Invalid Names Suppl.* 1: 5, in syn. 1947. *Citharexylum myrianthum* Cham. ex Moldenke, *Alph. List Cit.* 4: 1066, sphalm. 1949. *Citharexylum myrianthum* Cham. apud Angely, *Fl. Parana* 11: 31. 1957. *Citharexylum myrianthum* var. *obtusifolia* Mart., in herb.

Literature: Cham., *Linnaea* 7: 117—119. 1832; Walp., *Repert.* 4: 77. 1845; Schau. in A. DC., *Prodr.* 11: 612. 1847; Morong, Britton, & Vail, *Ann. N. Y. Acad. Sci.* 7: 198. 1892; Jacks., *Ind. Kew.* 1: 549. 1893; Chod., *Bull. Herb. Boiss.*, sér. 2, 2: 821 [Plant. Hassler. 200]. 1902; Chod. & Hassler, *Bull. Herb. Boiss.*, sér. 2, 4: 1166 [Plant. Hassler. 502]. 1904; Briq., *Ann. Conserv. & Jard. Bot. Genève.* 7--8: 317. 1904; Hayek in Engl., *Bot. Jahrb.* 42: 170. 1908; Glaz., *Bull. Bot. Soc. France Mém.* 3: 546. 1911; Prain, *Ind. Kew. Suppl.* 4: 49. 1913; Molfino, *Physis* 7: 102. 1923; Latzina, *Trab. Inst. Bot. & Farm.* 54: 78. 1935; Latzina, *Lilloa* 1: 188. 1937; Moldenke, *Alph. List Common Names* 7, 25, 27, & 31. 1939; Moldenke, *Geogr. Distrib. Avicenn.* 25, 28, 29, & 36. 1939; Herter, *Revist. Sudam. Bot.* 6: 97. 1939; Moldenke, *Prelim. Alph. List Invalid Names* 15 & 17. 1940; Hoehne, Kuhlmann, & Handro, *O Jard. Bot. S. Paulo* 577. 1941; Moldenke, *Lilloa* 6: 318--319. 1941; Kuhlmann, *Inst. Bot. Observ. Ger. Con-*

trib. 5: 19 & II. 1942; Moldenke, *Alph. List Invalid Names* 13-15. 1942; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 1], 36, 40, 43, 71, & 88. 1942; Moldenke, *Lilloa* 8: 414. 1942; Raimondi, *Bol. Mus. Hist. Nat. Jav. Prado* 7: 245. 1943; Moldenke, *Phytologia* 2: 97. 1944; Augusto, *Fl. Rio Grande do Sul* 236. 1946; Moldenke, *Alph. List Cit.* 1: 9, 11, 27, 56, 136, 170, 171, 184, 192, 200, 201, 237, 263, 265, 270, 273, 274, 289, 298, & 309. 1946; Moldenke, *Alph. List Invalid Names Suppl.* 1: 5. 1947; Kuhlmann & Kühn, *Flor. Dist. Ibiti* 116 & 180. 1947; H. N. & A. L. Moldenke, *Pl. Life* 2: 76. 1948; Moldenke, *Alph. List Cit.* 2: 328, 329, 332, 333, 343, 361-363, 365, 369, 370, 372, 409, 413, 420, 424-428, 431, 445, 459, 529, 534, 550-552, 599, & 619 (1948), 3: 670, 684, 690, 703, 704, 710, 736, 745, 749, 751, 783, 784, 816, 855, 856, 862, 892, 900, 920, & 923 (1949), and 4: 1013, 1020, 1040, 1044, 1049, 1062, 1066, 1094, 1123, 1236, 1287, & 1301. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 76, 98, 103, 157, & 179. 1949; H. N. & A. L. Moldenke, *Anal. Inst. Biol. Mex.* 20: 4. 1949; Moldenke, *Phytologia* 3: 287. 1950; Stellfeld, *Trib. Farmac.* 19 (10): 169. 1951; Moldenke, *Inform. Set* 48 *Spec.* [2]. 1954; Rambo, *Sellowia* 6: 60, 84, & 153. 1954.

Fine majestic tree or shrub, 3--15 m. tall; trunk to 30 cm. in diameter; bark smooth and flat, lacerated, from dark or gray to yellow; branches and branchlets unarmed, subscabrid, medium-stout, strong, woody, stramineous, shiny, very obtusely 4--6-angled or subterete, rarely acutely tetragonal, glabrate, the branches usually divaricate and more or less angular, the branchlets often subternate or ternate, tetragonal, often 4-carinate; twigs slender, chestnut-brown, often ternate or alternate, more or less tetragonal and sulcate, minutely strigillose or glabrate; nodes usually not annulate or annulate only when the leaves are strictly opposite; principal internodes 1--8 cm. long; leaf-scars borne on short, stout, corky, appressed sterigmata 1--4 mm. long; leaves decussate-opposite, but very often varying from subopposite or approximate to scattered, subternate, ternate, subalternate, or even alternate both on young shoots and on older wood (!); petioles slender, 1--2.1 cm. long, flattened above, glabrate; leaf-blades chartaceous or coriaceous, bright-green, lighter beneath, elliptic or elliptic-lanceolate to oblong-elliptic or oblong, varying to obovate, 3.5--16.7 cm. long, 2--7 cm. wide, obtuse (rarely retuse) or acute to subacuminate or acuminate at the apex, the acumen itself often rounded, entire, acute or cuneate at the base and somewhat prolonged into the petiole, bearing 1 or 2 more or less elongate (often greatly enlarged) pelviform glands close to the midrib on this basal prolongation, shiny and glabrous or subglabrate (or scabridous) above (except for the more or less strigillose midrib), minutely scabridous-strigillose or lightly hirtellous on the larger venation beneath; midrib slender, plane above, prominent beneath; secondaries slender, 4--11 pairs, obliquely ascending, often not very arcuate, sometimes anastomosing at the margins beneath but often hardly or not at all doing so, plane above, prominent beneath; vein and veinlet reticulation abundant, plane above, noticeably

prominent beneath; racemes axillary and terminal, simple, but often crowded in paniculiform manner, mostly erect, sometimes nutant, 6.5--20 cm. long, to 3.5 cm. wide in anthesis, many-flowered; peduncles rather slender, chestnut-brown, 1--4 cm. long, minutely strigillose, often bearing 1 or more irregularly spaced nodes with or without buds and bracts or bractlets; rachis slender, angulate, striate, brown, varying from strigillose or densely puberulent to lightly hirtellous or short-pubescent; pedicels slender, to 3 mm. long, densely short-pubescent; bracts often present, foliaceous, resembling the leaves in all respects but usually smaller; bractlets often present, scattered, very variable in size and shape, usually linear or linear-lanceolate to very narrowly oblong, 1--2 cm. long; prophylla scale-like or linear-setaceous, minute, acute, pubescent, shorter than the pedicels; flowers subsessile or pedicellate, nutant, often alternate, sparse, fragrant, often secund or subsecund during anthesis; calyx subcylindric-cyathiform or urceolate-obconic, membranous, herbaceous-banded, about 5 mm. long, obtuse at the base, 5-nerved, strigillose-pubescent and ciliate, minutely tuberculate toward the base outside, its rim rather irregularly, 5- or 6-dentate with obtuse or rounded teeth, or often bilabiate with the upper lip 3-parted and the lower bifid; corolla long-tubular or subhypocrateriform, varying from white or cream-colored to whitish-rose or yellowish, 15--19 mm. long, 3--4 times as long as the calyx, its tube usually cream-colored toward the apex and green or greenish toward the base, narrow, puberulent in the throat or lightly lanuginous above the stamens within, otherwise glabrous, the limb usually white, patulous, bilobed, 5-parted, externally glabrous, the lobes equal, patent, about 5 mm. long, broadly obovate; fertile stamens 4, inserted in the lower part of the corolla-tube, equaling the calyx, not plainly didynamous; staminode slightly smaller, inserted lower than the stamens; filaments shorter than the erect linear anthers; style almost equaling the calyx; stigma brown, incrassate, emarginate; fruiting-calyx cupuliform, indurated, about 4 mm. long and 7 mm. wide, glabrate, its rim deeply and irregularly 5-lobed with acute triangular lobes; fruit oblong or obovate, about 10 mm. long, 7--8 mm. wide when mature, not very or not at all fleshy, red or scarlet when fresh, light-brown in drying, glabrous, 2-sulcate, 2-seeded.

The species was based on several collections made by Friedrich Sellow (nos. 550 and 650 and s.n.) in Bahia, Brazil, probably all near Nazaré, and deposited in the herbarium of the Botanisches Museum at Berlin. Most of the cotype specimens are only in bud and therefore do not show the size attained by the flowers when in full anthesis. There is, however, one sheet which exhibits well both the immature and the mature flowers. The type of C. scabrum Willd. is Herb. Willdenow 11475 from the Link herbarium. C. macranthum Hayek is based on K. Fiebrig 596, collected at the edge of woods by a wet campo at Cordillera de Altos, Paraguay, on December 12, 1902, deposited in the Berlin

herbarium. Unfortunately the entire Verbenaceae section of the Berlin herbarium was destroyed by fire during World War II, so that these type and cotype specimens, and hundreds of other specimens cited by me in my monographs as being in this herbarium, are now non-existent. I luckily examined them in the years prior to World War II, and I have since examined and annotated all the new material of this family acquired since the war.

The type of C. myrianthum var. acuminatum is Balansa 2090a, collected at Borja, between Villa-Rica and Caaguazu, Paraguay, in November, 1874, and deposited in the Delessert Herbarium at Geneva. Briquet states that this variety differs from the typical form of the species in having the leaf-blades regularly acuminate at the apex, the acumen itself obtuse at its tip. However, careful comparison of the material with the wealth of other material available fails to reveal any constant characters by which the so-called variety may be maintained. The same is true of Hayek's C. macranthum, which Hassler reduced to varietal rank.

C. myrianthum var. obtusifolia seems to be based on Martius 413 in the Munich herbarium. A sheet formerly in the Sprengel herbarium at Berlin bore the annotation "Citharexylon Plumerii* Plum. ic. t. 157, f. 2. ? P. Brown. jam. t. 28, f. 2". These two cited illustrations, however, plainly represent C. caudatum L. and have nothing to do with C. myrianthum.

The venation on the lower leaf-surfaces of C. myrianthum is quite distinct and conspicuous, but usually is not at all so on the upper surface. The remarkable frequency of scattered, ternate, or subalternate leaves and branchlets or twigs is most noteworthy. The flowers are among the largest known in the genus. It has been collected in anthesis from October to March, and in fruit in December and January, growing at altitudes of 2 to 900 meters. Collectors have found it in wet places, in the vicinity of lakes and streams, in wet or mountainous woods or wooded swamps, and at the edge of primeval forests. Jørgensen reports it as "common in humid thickets", Anisits says it occurs in wet meadows, and Pedersen found it on wet ground in thickets by small streams. It is especially abundant in the Organ Mountains of Rio de Janeiro. Tweedie describes it as a "fine majestic tree with fine clusters of red berries found in moist places in woods of S. Brazil". Hoehne refers to it as an "arvore grande". Endlich says that it is quite common in moist places among fields and woods, its red fruit rendering it quite conspicuous from a distance; its wood being of medium value. Kuhlmann & Kühn classify it as a helohylophyte. Hatschbach found it on an alluvial plateau, and Costa reports it from mata. Dusén says it grows "in locis apertis" along railroad tracks, and Kuhlmann states that it is an "arvore comum em terrenos úmidos das baixadas."

It has been confused with and misidentified in herbaria as C. barbinerve Cham., C. cinereum L., C. quadrangulare L., C. solanaceum Cham., "C. 4-angulare L.", C. myrianthum var. rigid-

um Briq., and Cordia sp. Briquet's var. rigidum is regarded as a distinct species by me.

The Glaziou 13058 and 13059 cited as C. myrianthum by Glaziou in the reference listed above are actually C. glaziovii Moldenke, which see, while his 9989, cited by him as C. quadrangulare Jacq., is the true C. myrianthum. He states that the latter was cultivated at Quinta da Boa Vista, Rio de Janeiro. The Raimondi 12501 identified as "Citharexylum cfr. myrianthum Cham." in Bot. Mus. Hist. Nat. Jav. Prado 7: 245 (1943) has not been seen by me, but is probably not this species. It was collected on "pampa hermosa" in the Montaña del Pangoa, province of Jauja, Junín, Peru. The D. A. Lima s.n. from Pernambuco, cited below, may be from cultivated material, but the labels do not indicate this. The M. Kuhlmann s.n. [18/2/1946], cited below, consists only of seeds.

Kuhlmann & Kuhn, in their Flor. Dist. Ibiti 180 (1947), mention the common names "pau de viola" and "pimenteira", and then continue as follows: "O nome grego desta planta, traduzido para o vernáculo, corresponde ao primeiro nome popular indicado, acrescido do qualificativo correspondente a 'plurifloro' ou, melhor ainda, 'miríades de flores'. De fato, esta planta, comum nos terrenos úmidos, cobre-se de milhares de flores alvas, às vezes levemente róseas, dispostas em cimas secundifloras, axilares ou terminais, entre Novembro e Dezembro, as quais, depois de saciarem de pólen e nectar as 'Abelhas' e outros Insetos que as visitam, se desenvolvem em frutos drupóides, oval-oblongados, de coloração alaranjada até vermelha, um tanto parecidos com certas variedades de 'Pimenta'. Dizem que as 'Pombas' comem estes frutos e, por isto, a árvore de madeira leve e ressonante, própria para instrumentos de corda, recebe também em alguns lugares o nome de 'Pombeira'".

Common names recorded for the species are "caá voró", "carvoeiro", "fruta de macaco", "jacatauba", "pau de viola", "pimenteira", "pirazú rembiú", "pombeiro", "primenteira", "sarriá", "tarumã", "tombeiro", "tupacý-mboý", "tucaneira", "tucaneiro", "turuman", and "zará". In all, 263 herbarium specimens, including the types of all the names involved, and 20 mounted photographs and clippings have been examined.

Citations: BRAZIL: Bahia: Pirajá da Silva 15 (N, Sp--39338); L. Riedel s.n. [pr. Ilheos, Dec. 1823] (L, L, L); Sellow 550 (B--cotype, B--cotype), 650 [Macbride photos 17597] (B--cotype, B--cotype, F--663026--photo of cotype, Kr--photo of cotype, N--photo of cotype), s.n. [Nazaré, prope Bahia] (B--cotype, B--cotype, B--cotype, B--cotype, B--cotype, Dc--cotype, K--photo of cotype, L--cotype, N--photo of cotype, S--photo of cotype, Z--photo of cotype). Minas Gerais: Mello Barreto 10396 [Herb. Jard. Bot. Belo Horiz. 30269] (N); Miers s.n. (Bm). Paraná: Dusén 7462 (Ca--501682, D--683014, E--1035823, F--668417, G, K, Lu, S, W--1481818), 7018 (N, S, W--1481816), 8850 (B, Cb, E--1035820, G, I, S), 14595 (B, E--908055, G, N, S, S, W--1481817); Hatschbach 1653 (N). Pernambuco: D. A. Lima s.n. [Estrada Dois Irmãos, Recife]

(Be--52402, Be--52402a). Rio de Janeiro: Andersson s.n. [1857] (S); Glaziou 11318 (B, Br, Cb, Cp, K, L, N, P, P, P); Luschnath s.n. (B); Martius 340 (Mu--751); Miers 4588 (K), 4590 (K); L. Riedel s.n. [pr. Mand. 1-3. 1823] (L); Sampaio s.n. [Guaratiba; Herb. Rio de Jan. 25741] (N), s.n. [Campos; Herb. Rio de Jan. 31549] (N); Schenck 2560 (B); Widgren 1195 (S, S). Rio Grande do Sul: Emrich 11264 (Rb); Henz 32681 (N); Malme 402 (S, S), 780 (S, S); Moldenke & Moldenke 19686 (Lg, N); Rambo 1078 (N, S), 30606 (Rb), s.n. [27.XI.1945] (S); Thering 174 (B); Tweedie s.n. [woods of Lagoa de los Patos] (K). Santa Catarina: Eq. Ecologia 150 (Le); Gevieski 56 [H. B. R. 8381] (Cb, N); Klein 866 (Sm), 2195 (Sm); Reitz 4191 [Herb. Reitz 4749] (Le, S), C.1768 (N, S); Reitz & Klein 1184 [H. B. R. 8376] (N, Z), 2697 (Sm), 5803 (Z). São Paulo: Brade 5790 (S); A. P. D. Costa 2012 (N, Sf); Heiner 342 (S); F. C. Hoehne s.n. [Itá] (K, K, N, Sp--31426), s.n. [Santos] (K, Sp--29949), s.n. (N, Sp--887, Sp--28578); Koscinsky s.n. (K, Sp--30050); M. Kuhlmann s.n. [18/2/1946] (N, Sp); Leite 3684 (El); Löfgren s.n. [Herv. Geogr. & Geol. S. Paulo 4219] (G, N, Sp--15628); Löfgren & Edwall s.n. [Herv. Geogr. & Geol. S. Paulo 2816] (N, Sp--15630); Moldenke & Moldenke 19627 (N); Mosén 3033 (S, S, S, S, S), s.n. [Santos] (P); Viégas & Kiehl s.n. [Herb. Inst. Agron. Est. S. Paulo 3863] (Sp--42020). State undetermined: Helmenreich 38 (B, B, N, V, V); Herb. Imp. Vien. 146 (K); Herb. Martius 413 (B, B, Br, Cb, E--119105, K, Le, M, Mu--753); Herb. Persoon s.n. (Le); Herb. Willdenow 11475 [ex herb. Link] (B, K--photo, N--photo, S--photo, Z--photo); Martius s.n. (Mu--752); Otto s.n. (B); Riedel & Langsdorff 121 (L); Riedel & Luschnath 121 (L); Widgren 733 (S). PARAGUAY: Anisits 6 (S); Balansa 2090a (Br, Cb, Cb, K, L, P, S, X); Endlich 207 (B); Fiebrig 596 [Macbride photos 17596] (B, B, Cb, Ed, F--222155, F--663025--photo, K, K--photo, Kr--photo, N, N--photo, N--photo, S--photo, Z--photo), 6323 (B, Bm, Cb, Cb, G, K, Sp--33506, W--1178003); Hassler 1263a (Bm), 1363 (Bm, K, N, N, N, P, X, X), 1363a (K, P, X), 3590 (A, Bm, Cb, Cb, F--686678, K, N, P, V--2184, X), 5457 (A, B, Bm, Ca--944322, Cb, K, K, N, P, P, S, V--3184, X), 12366 (A, A, B, Bm, Cb, Cp, E--848249, Ed, F--689784, G, K, Le, N, W--1057310), 12942 (Bm, Ed); Jørgensen 3688 [Herb. Osten 22246] (Cp, D--653292, D--690508, Du--185415, E--971984, E--1006176, F--696895, P, S, Ug, W--1483798); Morong 830 (Bm, C, D, E--119104, Ed, F--18062, G, K, Mi, Ug, W--57340, W--1416860, X); Pedersen 3163 (S); T. Rojas 1876 [Herb. Hort. Parag. 10442; Herb. Osten 13565] (Ug). ARGENTINA: Misiones: Curran 30 (N, W--920549); Ekman 1440 (S); D. Rodriguez 145 [Herb. Inst. Miguel Lillo 10000] (N). CULTIVATED: Brazil: Glaziou 9989 (Cp, K, P); F. C. Hoehne, pl. viv. 168 [Herb. Inst. Biol. S. Paulo 28578] (Es, F--895340, N, N, Qu); W. Hoehne 1339 (N);

Pava Coelho 2374 (N, Sf). MOUNTED CLIPPINGS: Cham., Linnaea 7: 117--119. 1832 (B).

CITHAREXYLUM OBTUSIFOLIUM Kuhlmann, Arquiv. Inst. Biol. Veg. Rio Jan. 3 (1): 48, pl. 6. 1936.

Synonymy: Cytarexylum obtusifolium Kuhlmann apud Occhioni, Lilloa 17: 484. 1949.

Literature: Kuhlmann, Arquiv. Inst. Biol. Veg. Rio Jan. 3 (1): 48, pl. 6. 1936; Moldenke, Geogr. Distrib. Avicenn. 25. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 36 & 88. 1942; Salisb., Ind. Kew. Suppl. 10: 53. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 76 & 179. 1949; Occhioni, Lilloa 17: 484. 1949.

Illustrations: Kuhlmann, Arquiv. Inst. Biol. Veg. Rio Jan. 3 (1): pl. 6. 1936.

Tree, 10--15 m. tall; branches nodose, cinerascens; leaves alternate; petioles 2--4 cm. long; leaf-blades oblong-elliptic, 10--15 cm. long, rather obtuse at the apex, entire, attenuate into the petiole at the base, loosely reticulate, 2-glanduliferous at the base, glabrous; secondaries 5 or 6, distant, arcuate-ascending, the lowest running along the margins for a long distance; inflorescence terminal, racemose, pedunculate, about 15 cm. long, glabrous; flowers not known; fruiting-pedicels very short; fruiting-calyx about 1.5 cm. wide, patent, its rim crenate-dentate; fruit drupaceous, globose, about 2 cm. long and wide, glabrous; pyrenes 2-celled, concave within, 2-keeled longitudinally in the concavity.

The type of this very puzzling species was collected by João Geraldo Kuhlmann (no. 123) in the primeval forest near Goutacazes, Espirito Santo, Brazil, on March 31, 1934, and is no. 28901 in the herbarium of the Jardim Botânico at Rio de Janeiro. Unfortunately, I have not been able to examine the type specimen as yet.

CITHAREXYLUM OLEINUM (Benth.) Moldenke in Fedde, Repert. 42: 248. 1937.

Synonymy: Sclerocarpus oleinum Benth. in Lindl., Bot. Reg. 29: misc. 65--66. 1843. Petitia oleina (Benth.) Benth. & Hook. f. ex Hemsl., Biol. Cent.-Am. Bot. 2: 539. 1882. Citharexylum grenzebachianum Moldenke in Fedde, Repert. 37: 226. 1934. Petitia oleina (Benth.) Benth. & Hook. ex Moldenke, Prelim. Alph. List Invalid Names 33, in syn. 1940.

Literature: Benth. in Lindl., Bot. Reg. 29: misc. 65--66. 1843; Hemsl., Biol. Cent.-Am. Bot. 2: 539. 1882; Jacks., Ind. Kew. 2: 477 (1894) and 848. 1895; Moldenke in Fedde, Repert. 37: 226 (1934) and 42: 248. 1937; Hill, Ind. Kew. Suppl. 9: 67. 1938; Moldenke, Geogr. Distrib. Avicenn. 13. 1939; Moldenke, Prelim. Alph. List Invalid Names 16, 33, & 40. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16, 71, & 88. 1942; Moldenke, Alph. List Invalid Names 14, 34, & 40. 1942; Moldenke,

Alph. List Cit. 1: 313 & 314. 1946; Salisb., Ind. Kew. Suppl. 10: 53. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 83. 1948; Moldenke, Alph. List Cit. 2: 419, 424, 499, 500, & 566 (1948), 3: 834 (1949) and 4: 1028 & 1038. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29, 158, & 179. 1949; Moldenke, Phytologia 3: 375. 1950.

Low branched shrub, to 1 m. tall, forming clumps; branches medium, subterete, with very small pith; branchlets slender, subterete, gray, glabrate or obscurely incanous; twigs and young shoots very slender, gray, subterete or obsoletely tetragonal, very minutely or obsoletely canescent, leafy; nodes not annulate; principal internodes 0.5--3.7 cm. long, mostly greatly abbreviated on leaf- and flower-bearing twigs; leaf-scars practically sessile; leaves decussate-opposite or subopposite, numerous on young shoots; petioles slender, 1.5--5 mm. long, densely appressed-canescenscent (appearing subglabrate at first glance); leaf-blades firmly chartaceous, rather uniformly dark-green on both surfaces, oblanceolate, 2.5--8.5 cm. long, 0.7--2.8 cm. wide, acute at the apex, entire (and often subrevolute on narrower leaves) along the margins, cuneate at the base and prolonged into the petiole, glabrous on both surfaces; midrib very slender, plane or subimpressed above, prominent beneath; secondaries 4--7 pairs, often very obscure, ascending, not very much arcuate; vein and veinlet reticulation indiscernible on both surfaces; racemes greatly abbreviated, axillary, abundant, 1--3-flowered, canescent; peduncles very slender, to 6 mm. long, canescent; pedicels slender, 1--3 mm. long, canescent; prophylla setaceous; bracts and bractlets usually absent; calyx campanulate, about 3.1 mm. long and 2 mm. wide, densely white-puberulent, its rim subtruncate and subapiculate or deeply 5-lobed; corolla infundibular, white, densely white-puberulent throughout externally, its tube about 3.6 mm. long, about 2 mm. wide at the base, to 3.6 mm. wide at the apex, densely pilose within at the throat, the limb 3--5-lobed, the lobes ovate, about 1.8 mm. long and 2.3 mm. wide, rounded at the apex; stamens 4, subequal, included, inserted about 1.5 mm. below the mouth of the corolla-tube; filaments about 1 mm. long; anthers oblong, about 1.3 mm. long and 0.7 mm. wide; pistil included; style rather thick, about 0.7 mm. long, glabrous; stigma very shortly 2-lobed, about 0.5 mm. long; ovary subglobose, about 1 mm. long and wide, glabrous; fruiting-calyx shallowly cupuliform or patelliform, about 2.5 mm. long, 4.5--5 mm. wide, glabrate or canescent; fruit subglobose or oblong, to 7 mm. long and 6 mm. wide, black when ripe, rather fleshy with a soft thin, orange pulp, 2-lobed; pyrenes brownish.

The type of this species is a specimen taken from a plant cultivated in the garden of the Royal Horticultural Society in London, England, in 1844, and deposited in the herbarium of the Royal Botanic Gardens at Kew. The original name for the species was published in 1843, the year before the type was collected, so its description was apparently taken from the living plant or from the specimen collected in 1841 and also deposited in the Kew herbarium. The type of C. grenzebachianum was collected by Carl

Albert Purpus (no. 5337) at Bagre, San Luis Potosí, Mexico, in May, 1911, and is deposited in the Britton Herbarium at the New York Botanical Garden. It was named in honor of Myrle Eunice Grenzebach [Mrs. Lawrence Dewey Sherod], monographer of the genus Bouchea Cham.

The species has often been confused with C. tetramerum T. S. Brandeg. by herbarium workers, with which it has many points of similarity. Its very canescent flower-buds and unopened corollas are noteworthy. It has been collected in anthesis in May and September, and in fruit in September and November. Moore found it growing at an altitude of 2300 meters in Hidalgo. In all, 32 herbarium specimens, including the types of all the names involved, and 7 mounted photographs have been examined.

Citations: MEXICO: Hidalgo: H. E. Moore 5061 (N); Purpus 6516 (B, Ca--168470, E--825465). San Luis Potosí: Purpus 4903 (B, Em, Ca--149030, E--119067, F--344366, G, W--842142), 5025 (Ca--153341, Cb, Cb), 5337 (B, B--photo, Em, Ca--157426, E--119066, Ed, F--299068, G, K--photo, Me, N, N--photo, S--photo, W--463884, Z--photo), 5341 (B, Ca--157394, Cb, Cb, Ed, N--photo, P, Z--photo). CULTIVATED: England: Herb. Hort. Soc. London s.n. [1841] (K), s. n. [1844] (K--type).

CITHAREXYLUM OVATIFOLIUM Greenm., Proc. Am. Acad. 32: 301. 1897.

Literature: Greenm., Proc. Am. Acad. 32: 301. 1897; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 43. 1904; Moldenke, Geogr. Distrib. Avicenn. 13. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16 & 88. 1942; Moldenke, Alph. List Cit. 1: 299 (1946), 2: 342, 393, 419, 436, 437, 447, 499, & 540 (1948), 3: 830, 831, 849, & 872 (1949), and 4: 1023, 1028, 1040, & 1057. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29 & 179. 1949.

Soft woody shrub or tree, to 4 m. tall; branches tetragonal, minutely striate; branchlets and twigs slender, sharply tetragonal, medullose, densely pubescent with incanous hairs; nodes mostly contracted, annulate; principal internodes 3--8.3 cm. long; leaf-scars borne on slender, divergent, densely pubescent sterigmata 1--3 mm. long; leaves decussate-opposite; petioles slender, 5--19 mm. long, densely pubescent, often more or less winged above; leaf-blades membranous, dark-green above, slightly paler or much lighter beneath, ovate or ovoid, 3.5--12.5 cm. long, 1.5--6.5 cm. wide, acuminate or obtuse and submucronate at the apex, sparsely and rather irregularly crenate-dentate with blunt and appressed teeth along the margins except at the base and on the acumination (the smaller and immature leaves mostly entire), ciliate, broadly rounded at the base except for a very short triangular prolongation into the petiole, usually with 1 or more large glands on the lower surface at the base of the blade on either side of the midrib or else not glanduliferous, incanous-pubescent on both surfaces, especially along the venation, more densely so beneath; midrib very slender, prominent beneath; secondaries very slender, 5 or 6 pairs, ascend-

ing, mostly not arcuate, prominent beneath; vein and veinlet reticulation very slender, abundant, very slightly prominent on both surfaces and conspicuous by its pubescence; racemes axillary and terminal, erect or mutant, simple, spike-like, 5--12 cm. long, about 1 cm. wide, many-flowered, usually terminating the branches and branchlets; peduncles and rachis very slender, densely incanous-pubescent, the former 1--2.5 cm. long and sometimes nodose and bracteolate; pedicels very slender, 1 mm. long or less, densely white-pubescent; bractlets few, linear, white-pubescent; prophylla linear-subulate or subulate, incanous, 1--2 mm. long; calyx about 3 mm. long, 5-nerved and somewhat 5-angled, externally pubescent, its rim subtruncate or minutely irregularly 5-dentate, ciliate; corolla tubular, about 7 mm. long, white, its tube broad, about 4 mm. long, externally glabrous, densely pilose-pubescent in the throat, the limb 5-lobed, the lobes subrotund, glabrous on both surfaces but strongly ciliate; style glabrous; fruiting-calyx shallowly cupuliform, indurated, about 3 mm. long and 6 mm. wide, puberulent or glabrous, its rim truncate and subentire; fruit oblong, about 8 mm. long and 5 mm. wide, fleshy, shiny, black and wrinkled in drying, 2-sulcate in drying.

The type of this species was collected by Cyrus Guernsey Pringle (no. 6540) in a wet wooded barranca above Cuernavaca, Morelos, Mexico, at an altitude of 6500 feet, in August or September, 1896, and is deposited in the Gray Herbarium of Harvard University. It was collected again at the type locality in November, 1902. Its branchlets and twigs are mostly slightly contracted at the nodes. Its ovoid leaf-blades, taken in connection with the incanous pubescence, acutely tetragonal stems, and contracted nodes, serve well to distinguish this species. It has, however, been confused by herbarium workers with *C. sessaei* D. Don, which it closely resembles. Rose and Painter found the species at El Parque, Morelos, in September, 1903, and Reko encountered it at Pueblo Nuevo, Oaxaca, on August 16, 1917. It has been found at altitudes of 1500 to 2500 meters, blooming in August, September, and December, and in fruit in December. Hinton 2896 is described on the labels as a "vine". In all, 39 herbarium specimens, including the type, and 5 mounted photographs have been examined.

Citations: MEXICO: México: Hinton 2896 (F--879165, K, K). Morelos: Pringle 6540 (B--isotype, B--photo of type, Bm--isotype, Br--isotype, C--isotype, Ca--104986--isotype, Cb--isotype, Cm--isotype, E--119056--isotype, Ed--isotype, F--49477--isotype, G--type, Gg--152310--isotype, Io--38743--isotype, J--isotype, K--isotype, K--photo of isotype, L--isotype, Me--isotype, Me--isotype, Me--isotype, Mu--1826--isotype, N--isotype, N--photo of type, P--isotype, P--isotype, S--isotype, S--photo of type, V--4191--isotype, Vt--isotype, Vu--isotype, W--287859--isotype, W--1323217--isotype, X--isotype, Z--photo of type), s.n. [near Cuernavaca] (Cp, Mu--4176, V--9009); Rose & Painter 7225 (N, W--450808). Oaxaca: Reko 3343 (W--887742).

CITHAREXYLUM PACHYPHYLLUM Moldenke in Fedde, Repert. 37: 232--233. 1934.

Literature: Moldenke in Fedde, Repert. 37: 232--233. 1934; Hill, Ind. Kew. Suppl. 9: 67. 1938; Moldenke, Geogr. Distrib. Avicenn. 23. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 34 & 88. 1942; Moldenke, Alph. List Cit. 1: 122, 317, & 325 (1946), 2: 427 (1948), 3: 686 & 713 (1949), and 4: 1065 & 1113. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 72 & 179. 1949.

Shrub, to 2 m. tall; branches and branchlets obtusely tetragonal, medium or slender in thickness, strong, dark-brown, often verruculose because of the many prominent lenticels, minutely brownish-furfuraceous, puberulent, or glabrate, twiggy, twigs slender, dark-brown, more or less tetragonal, puberulent or glabrate; nodes rather obscurely annulate; principal internodes abbreviated, 0.7--3 cm. long; leaf-scars borne on short and slender, rather inconspicuous sterigmata 1--2 mm. long; leaves decussate-opposite, very numerous; petioles slender, 2--3 mm. long, minutely puberulent or subglabrate; leaf-blades coriaceous, very dark-green and shiny on both surfaces, nigrescent in drying, oblong or elliptic, 1.4--2.5 cm. long, 7--12 mm. wide, acute at the apex, entire or with a few minute antrorse or divergent teeth along the margins, subcuneate at the base, not glanduliferous, glabrous above, densely punctate beneath; midrib and the 3--5 rather indistinct secondaries very slender, minutely prominulent or plane, varying to subimpressed above, slightly prominulent beneath; vein and veinlet reticulation sparse, often not obvious; racemes terminating the many short lateral twigs, simple, 1--15 cm. long, many-flowered; peduncle and rachis slender, dark-brown, puberulent or subglabrate, the former much abbreviated; pedicels very slender, 1 mm. long or less; bracts and bractlets absent; prophylla linear-setaceous, about 1 mm. long; calyx obconic, about 3.9 mm. long and 2.8 mm. wide, conspicuously 5-costate, glabrous, the rim very shortly 5-dentate; corolla infundibular, white, its tube about 4.3 mm. long, about 0.8 mm. wide at the base and 2.6 mm. wide at the apex, externally glabrous, densely tomentose in the throat within, the limb 4- or 5-lobed, the lobes rounded-ovate, about 1.3 mm. long and 1.4 mm. wide, rounded at the apex; stamens 4 or 5, equal, included, inserted about 2.3 mm. below the mouth of the corolla-tube, not plainly didynamous; filaments very much abbreviated, about 0.2 mm. long; anthers oblong, about 1.3 mm. long and 0.5 mm. wide; pistil included; style thick, about 1 mm. long, glabrous; stigma slightly ampliate, very shortly 2-lobed, the lobes indistinct, about 0.2 mm. long; ovary elliptic, about 1 mm. long and wide, glabrous; fruiting-calyx cupuliform, about 4 mm. long and 7 mm. wide, glabrous, shiny, indurated, ribbed, its rim rather irregularly 5-lobed with blunt lobes; fruit very large, oblong-pyriiform, about 11 mm. long and 13 mm. wide, very firm, fleshy, deep-purple when fresh, black in drying, 2-seeded.

The type of this alpine species was collected by James Francis Macbride (no. 3490) in a shrubby canyon, at an altitude of

9500 feet, Huariaca, Junín, Peru, on April 12, 1923, and is deposited in the herbarium of the Chicago Natural History Museum. Weberbauer states that the species grows in small groups of shrubs on the grass steppes, Asplund found it in shady places below a cliff, and Metcalf encountered it in rocky soil on dry open hill-sides. It has been found at altitudes of 3400 to 3620 meters, blooming in May and June, fruiting in May. It has been confused by herbarium workers with C. dentatum D. Don, C. ilicifolium H.B.K., and C. punctatum Greenm., with all of which species it shows considerable affinity. In all, 10 herbarium specimens, including the type, and 4 mounted photographs have been examined.

Citations: PERU: Ayacucho: Weberbauer 5565 (B, E--1008719, F--628132, G, W--1473534). Junín: Macbride 3090 (B--photo of type, F--534160--type, K--photo of type, N--isotype, N--photo of type, S--photo of type, Z--photo of type). Lima: Asplund 11496 (S); A. Mathews 1021 (K). Puno: R. D. Metcalf 30464 (Ca--695131).

CITHAREXYLUM PENTANDRUM Vent., Descr. Pl. Nouv. Jard. Cels. 47, pl. 47. 1800.

Synonymy: Citharexylum molle Jacq., Hort. Schönbr. 4: 9, pl. 417. 1804 [not C. molle Salisb., 1796, nor H.B.K., 1818, nor Hook., 1940]. Citharexylum pulverulentum Pers., Syn. Pl. 2: 142. 1806. Citharexylum quadrangulare Hort. Madrit. ex Pers., Syn. Pl. 2: 142, in syn. 1806. Citharexylum molle Jacq. apud Steud., Nom. Bot., ed. 1, 202. 1821. Citharexylum pulverulentum Pers. apud Steud., Nom. Bot., ed. 1, 202. 1821. Citharexylum quadrangulare Hort. Madrit. ex Steud., Nom. Bot., ed. 1, 202, in syn. 1821 [not C. quadrangulare Jacq., 1760, nor Citharexylum quadrangulare L., 1786, nor Schau., 1864, nor Sessé & Moc., 1894, nor Millsp., 1907, nor Griseb., 1909, nor Hort., 1911, nor Jacq., 1909, nor A. Rich., 1909]. Citharexylum pentandrum Vent. apud Steud., Nom. Bot., ed. 1, 202. 1821. Citharexylum pentandrum Spreng. in L., Syst. Veg., ed. 16, 2: 764. 1825. Citharexylum villosum var. pentandrum Griseb., Syst. Untersuch. Veg. Kar. 108. 1857. Citharexylum villosum β pentandrum (Vent.) Griseb., Abhand. König. Gesell. Wissen. Götting. 7: 256. 1857. Citharexylum quadrangulare Boutelou ex O. E. Schulz in Urb., Symb. Antill. 6: 67, in syn. 1909. Citharexylum angulatum Ruiz ex Moldenke, Prelim. Alph. List Invalid Names 16, in syn. 1940. Citharexylum buekii Fischer, in part, ex Moldenke, Prelim. Alph. List Invalid Names 16, in syn. 1940. Citharexylum canescens Bueck ex Moldenke, Prelim. Alph. List Invalid Names 16, in syn. 1940. Citharexylum foetidum Hort. ex Moldenke, Prelim. Alph. List Invalid Names 16, in syn. 1940. Citharexylum ovatum Paulowski ex Moldenke, Prelim. Alph. List Invalid Names 17, in syn. 1940. Clerodendron pentandrum (Vent.) Bueck ex Moldenke, Prelim. Alph. List Invalid Names 21, in syn. 1940. Citharexylum pentandrum Vent. ex Moldenke, Alph. List Invalid Names Suppl. 1: 4, in syn. 1947. Citharexylum

tetragulare Hort. ex Moldenke, Alph. List Invalid Names Suppl. 1: 5, in syn. 1947.

Literature: Salisb., Prodr. 108. 1796; Vent., Tabl. Regn. Veget. 1: liv. 1799; Vent., Descr. Pl. Nouv. Jard. Cels. 47, pl. 47. 1800; Sw., Fl. Ind. Occ. 2: 1043. 1800; Desf., Tabl. Ecol. Bot., ed. 1, 54. 1804; Jacq., Hort. Schönbr. 4: 9, pl. 417. 1804; Pers., Syn. Pl. 2: 142. 1806; Poir. in Lam., Encycl. Méth. Bot. Suppl. 2: 367--368. 1811; Poir., Dict. Sci. Nat. 9: 285--286. 1817; Cels, Cat. Arbres 11. 1817; Steud., Nom. Bot., ed. 1, 202. 1821; Spreng. in L., Syst. Veg., ed. 16, 2: 764. 1825; Desf., Cat. Pl. Hort. Reg. Paris, ed. 3, 91. 1829; Cham., Linnaea 7: 116. 1832; Steud., Nom. Bot., ed. 2, 1: 375. 1840; Walp., Repert. 4: 74. 1845; Schau. in A. DC., Prodr. 11: 613. 1847; Griseb., Syst. Untersuch. Veg. Kar. 108. 1857; Griseb., Abhand. König. Gesell. Wissen. Götting. 7: 256. 1857; Bocq., Adansonia 3: 223. 1863; Jacks., Ind. Kew. 1: 550. 1893; O. E. Schulz in Urb., Symb. Antill. 6: 67--68. 1909; Stapf, Ind. Lond. 2: 220. 1930; Moldenke, Geogr. Distrib. Avicenn. 7 & 36. 1939; Moldenke, Alph. List Common Names 6. 1939; Moldenke, Prelim. Alph. List Invalid Names 15--17 & 21. 1940; Moldenke, Suppl. List Common Names 6. 1940; Moldenke, Alph. List Invalid Names 13--15, 19, & 58. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 27, 71, & 88. 1942; Moldenke, Phytologia 2: 97. 1944; Moldenke, Alph. List Cit. 1: 40, 77, 116, 118, 130, 135, 169, 276, & 277. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 4--5. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 52. 1948; Moldenke, Alph. List Cit. 2: 353, 356, 357, 402, 408, 409, 412, 414, 420, 421, 431, 434, 435, 447--449, 458, 459, 481, 489, 490, 528, 530, 560--562, 564--567, & 581 (1948), 3: 663, 702, 736, 801, 810, 881, & 898 (1949), and 4: 1087, 1129, 1207, 1208, & 1232. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 49, 158, & 179. 1949; Moldenke, Phytologia 3: 465. 1951; Moldenke, Journ. Calif. Hort. Soc. 15: 80. 1954.

Illustrations: Lam., Illustr. 3: pl. 545, fig. 2 g--o. 1797; Vent., Descr. Pl. Nouv. Jard. Cels. pl. 47. 1800; Jacq., Hort. Schönbr. 4: pl. 417 (colored). 1804.

Shrub or tree; branchlets medium-slender; twigs very slender, stramineous or gray, acutely or obtusely tetragonal, often many-ribbed, puberulent or white-pilose; nodes annulate, sometimes obscurely so; principal internodes 2.5--8.3 cm. long; buds very woolly; leaf-scars borne on rather short ascending sterigmata 1--3 mm. long; leaves decussate-opposite; petioles slender, 6--12 mm. long, densely or lightly pilose; leaf-blades chartaceous or submembranous, dark-green above, usually slightly lighter beneath, ovate or ovate-oblong to oblong, or elliptic, 2.2--9 cm. long, 1.3--4.5 cm. wide, acute at the apex, entire or rather coarsely and sometimes irregularly serrate except at the base, broadly rounded or acute at the base, with a pair of very small glands at the very base, slightly scabrous above or sometimes merely pilose along the midrib (or more or less densely pubescent-pilose when immature), densely pilose-pubescent beneath (especially uniformly pilose on the midrib, secondaries, and all the vein and veinlet

reticulation); midrib very slender, prominent beneath; secondaries very slender, 3--6 pairs, prominent beneath, often very slightly so above on mature leaves; racemes axillary or (mostly) terminal, 1.5--14.5 cm. long, 1--1.5 cm. wide during anthesis, mostly erect, many-flowered, not dense, simple; peduncles and rachis slender, densely incanous-pubescent, the former 3--9 mm. long; pedicels very slender, 1--2 mm. long, densely pubescent or villosulous, the lower ones in the raceme usually longer than the upper, sometimes obsolete; bracts and bractlets none: prophylla linear or filiform, 1--3 mm. long, pubescent or villosulous, mostly long and conspicuous, the lower ones in the raceme usually longer than the upper ones; flowers pedicellate or subsessile, subpendulous; calyx obconic-cyathiform or campanulate, 3--4 mm. long, varying from more or less pubescent to villous or velutinous externally, its rim obsoletely or manifestly 5-dentate, the teeth triangular, acute or broadly acuminate and mucous; corolla campanulate or hypocrateriform, white, twice as long as the calyx, 6--8 mm. long, the tube about equaling the calyx, sparsely pilose externally, very densely pilose within, villous in the throat, the limb 5-parted, lanuginous on both surfaces, the lobes obovate, rounded at the apex; stamens usually 4, sometimes 5, much shorter than the corolla and included in its tube, the fifth usually reduced to a staminode; filaments about 0.5 mm. long; anthers about 0.75 mm. long; staminode more or less rudimentary; pistil about 3 mm. long; style about 1.2 mm. long; stigma broader than the style, bilobed; ovary globose, faintly 2-lobed; fruiting pedicels about 1.5 mm. long; fruiting-calyx cupuliform, indurated, light, about 3 mm. long and 5 mm. wide, ribbed, pubescent, its rim 5-apiculate or 5-dentate, the teeth broadly elliptic and obtuse, often split in age; fruit drupaceous, oblong or obovate, 4.5--9 mm. long, 3.5--6 mm. wide, fleshy, glabrous, black and wrinkled in drying, 2-sulcate when dry; pyrenes bilocular.

The type of this puzzling species was collected by Anselme Riédélé in forests somewhere in Puerto Rico, deposited in the Ventenat herbarium. What appears to have been an isotype was seen by me in the Berlin herbarium before World War II and was photographed by me. The Herb. Persoon specimen in the Leiden herbarium, cited below, is probably the type of C. pulverulentum, and the Herb. Hort. Schönbrunn specimen in the Vienna herbarium is probably the type of C. molle.

Most of the specimens preserved in herbaria are from cultivated material grown in botanical gardens, and it is not completely certain that all of the West Indian material cited below was from wild material. The species was recorded by me as cultivated in Jamaica, Hafti, and Puerto Rico in my publications on the known geographic distribution of the members of this and related families, but I am now regarding these specimens as from native material. The finest collection of specimens of this species is in the Vienna herbarium. Poiret makes the comment for C. molle that "Le lieu natal de cette plante n'est pas connu". He comments further that C. pentandrum may possibly belong to the genus Duranta, but

he continues to classify it in Citharexylum because of its close similarity to C. subserratum Sw. Apparently he never saw the fruit, because one glance at this leaves no doubt that the plant is a true Citharexylum.

Grisebach's C. villosum var. pentandrum is sometimes given in the synonymy of C. fruticosum var. villosum (Jacq.) O. E. Schulz, but Grisebach distinguishes it by its shorter corolla-tube and 5 stamens. There seems no doubt that his trinomials belong in the synonymy of C. pentandrum. He records the plant, however, from St. Thomas and "Dom." [=Dominica?], but the specimens on which he bases these records, if any, have not as yet been seen by me. On the other hand, the C. tomentosum Poir., included by Schauer with a question in the synonymy of C. pentandrum, actually belongs in that of C. fruticosum var. villosum. Schauer states that he saw C. pentandrum cultivated and subsponaneous in the Berlin and De Candolle gardens. The Pavon specimens in the Herbarium Boissier are labelled "Peruvia" only, so there is no way of being certain if they came from wild or cultivated material. I am assuming that they are from cultivated plants. Others are labelled "Nueva España", a term usually applied to Mexico in his time.

Herbarium material of this species has been confused with and misidentified by herbarium workers as C. caudatum L., C. cinereum L., C. dentatum D. Don, C. subserratum Sw., and C. villosum Jacq. Common names recorded for it are "bois de guitarre", "citharexylum a cinq étamines", "citharexylum a feuilles molles", "cotelet à cinq étamines", and "cotelet à feuille molles".

Chamisso says "foeta ossiculis duobus, dorse convexis, facie paululum concavis fere planis, bilocularibus, dispermis. Speciminibus spontaneis nostris folia forma variabilia firmiora, floresque brevius pedicellati quam hortensibus."

In all, 100 herbarium specimens, including the type collections of all the names involved, and 11 mounted photographs and illustrations have been examined.

Citations: JAMAICA: Buek s.n. [Jul. 1823] (L); Schagin s.n. [1840] (N, V--285056). HISPANIOLA: Haïti: Herb. Portenschlag s.n. (V). PUERTO RICO: Bertero s.n. [herb. Sprengel] (B, B); Riédle s.n. [herb. Ventenat] (E--isotype, K--photo of isotype, N--photo of isotype, S--photo of isotype, Z--photo of isotype). WEST INDIES: Island undesignated: Herb. Jewett s.n. (Mi). CULTIVATED: Austria: Herb. Hort. Bot. Acad. Viennen. s.n. [17 Junio 1805] (L); Herb. Hort. Schönbrunn. s.n. (N--photo, S, V--285057, V, Z--photo); Herb. Hort. Vindob. s.n. (V--180810, V--180811); Herb. Portenschlag s.n. (V--1393--illustration, V, V); Herb. Schreber s.n. (Mu--763); Host s.n. [hort. Vindob.] (V). Denmark: Herb. Liebmann s.n. (Cp); Herb. Vahl s.n. (Cp, Cp); Mahn f. s.n. (Cp). England: Herb. Hort. Kew s.n. (Bm). France: Collector undesignated s.n. [2 aout, h. M.] (Dc), s.n. [29 aout] (Dc), s.n. [Jard. Plant.] (K); Herb. Harvey s.n. [jardin de Montpellier]

(Du--166405); Herb. Hort. Bot. Monsp. s.n. [1826] (L); Herb. Hort. Bot. Paris s.n. (Cp, Cp); Herb. Ledebour s.n. (L); Herb. Le Monnier s.n. (Cb); Herb. Ventenat s.n. [hort. Celsiusus] (Cb, Cb); Michel s.n. [hort. Monspeliensis, 1807] (Dc); Perrottet s.n. [Jard. de Paris] (Cb). Germany: Collector undesignated s.n. [cult. Biroli] (B); Crépin s.n. [H. Bot. Berol.] (Br); Herb. Bonpland s.n. [hort. Berol.] (P); Herb. Hort. Berol. s.n. [1806--12] (B), s.n. [Jun. 1844] (B), s.n. [Apr. 1846] (N--photo, S, Z--photo), s.n. [1854] (B), s.n. [Aug. 17] (B); Herb. Hort. Carlsruhe s.n. (Us); Herb. Hort. Monacensis s.n. [15.X.1849] (Mu--764); Herb. Kümmerer s.n. [Hort. Bot. Monac. 1839] (Mu); Herb. Link s.n. (B); Herb. Mertens s.n. (L); Herb. Nees von Esenbeck s.n. (L); Herb. Prince Paul s.n. [hort. Mergentheim] (Mu--1606); Herb. Schrader s.n. (L); Herb. Schwägrichen s.n. [hort. Breiteriano] (Mu--1382, Mu--1383); Herb. Schwetzing s.n. [19 Sept. 1830] (L); Herb. Zuccarini s.n. (Mu--765); Lindblad s.n. [hort. Berol.] (Us); Willdenow s.n. (Dc). Italy: Herb. Harvey s.n. [h. P. 1824] (Du--166410); Herb. Hort. Florentia s.n. (Cb); Herb. Hort. Neapol. s.n. [Jul. 1832] (Le). Java: Herb. Mus. Bot. Bogor. XI.G.51 ["25732-4"] (Bz--25732, Bz--25733, Bz--26528, Bz, Bz, Bz, Bz, Bz, Bz, Bz, N), XI.G.51a (Bz--25735, Bz--26529, N). Mexico: Herb. Bernardi s.n. (E--119103, E--119161); Hornbeck s.n. (S); Pavon s.n. [Nueva España] (N, X, X, X). Netherlands: Herb. Lugd.-Bat. 908266-652 (Le); Herb. Persoon s.n. (Le). Peru: Herb. Pavon s.n. (X, X, X, X); Ruiz s.n. (B). Russia: Herb. Bot. Paulowsk. s.n. [1840] (V--285056); Herb. Fischer s.n. (L). Spain: Collector undesignated 54 (Q); Dumeril s.n. [hort. Madrid, 1806] (Dc). Switzerland: Herb. Seigneux s.n. [Genève] (X). LOCALITY OF COLLECTION UNDESIGNATED: Collector undesignated 16 (Q), 56, in part (Q), 57 (Q), s.n. (Dc). MOUNTED ILLUSTRATIONS: Ventenat, Descr. Pl. Nouv. Jard. Cels. pl. 47. 1800 (Cb, Cb).

x CITHAREXYLUM PERKINSI Moldenke, hybr. nov.

Planta hybrida naturalis, foliis firmis anguste ellipticis vel lanceolatis 7.5--16 cm. longis, 2--6.5 cm. latis, ad apicem obtusis vel acutis vel breviter acuminatis, integerrimis, ad basin acutis, nitidis, utrinque glabris, nervis utrinque planis, floribus breviter pedicellatis.

Natural hybrid between C. caudatum L. and C. spinosum L., with characters more or less intermediate between the two. The leaf-blades are firm in texture, narrowly elliptic or lanceolate, 7.5--16 cm. long, 2--6.5 cm. wide, varying from obtuse or acute to shortly acuminate at the apex, entire along the margins, acute at the base, glabrous and shiny on both surfaces, the venation rather obscure when young, plane on mature leaves, not at all or hardly raised.

The type of this hybrid was collected by Janet Russell Perkins

(no. 1320) in pastures near Troy, at an altitude of 1500 feet, Jamaica, on April 3, 1917, and is deposited in the herbarium of the Botanisches Museum at Berlin. The collector notes that it is a tree 20 feet tall, with white flowers, and is called "juniper berry" by the inhabitants. The only two specimens seen by me were annotated by me in 1936 as C. caudatum and as C. spinosum respectively. When only immature leaves are seen the resemblance to C. caudatum is striking, but the mature leaves are more like those of C. spinosum. Both parents are well known on the island.

Citations. JAMAICA: Perkins 1320 (B—type, G—isotype, N—photo of type, Z—photo of type).

CITHAREXYLUM PERNAMBUCENSE Moldenke, Alph. List Common Names 26, hyponym (1939); Phytologia 1: 442. 1940.

Literature: Moldenke, Alph. List Common Names 26. 1939; Moldenke, Geogr. Distrib. Avicenn. 25. 1939; Moldenke, Phytologia 1: 442. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 36 & 88. 1942; Moldenke, Phytologia 2: 97. 1944; Salisb., Ind. Kew. Suppl. 10: 53. 1947; Moldenke, Alph. List Cit. 3: 814 & 815. 1949; Pickel, Piso & Marcgrave Bot. Bras. 90. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 76 & 179. 1949.

Tree; branches gray, glabrate; branchlets chestnut-brown, minutely puberulent, becoming glabrescent, subterete; nodes not annulate; principal internodes 2.7—5.4 cm. long; leaves decussate-opposite or subopposite; petioles very slender, 9—15 mm. long, chestnut-brown, minutely puberulent, conspicuously canaliculate above; leaf-blades lightly chartaceous, oblong or subovate to obovate, 8.8—12 cm. long, 5.3—7 cm. wide, acute or obtuse at the apex, entire, acuminate at the base, rather shiny above, with 2 elongate glands adjacent to the midrib at the base beneath, minutely and obscurely puberulent or strigillose above, but becoming glabrescent, densely velutinous-pubescent beneath; midrib slender, practically plane above, prominent beneath; secondaries slender, 5—7 per side, arcuate-ascending, not conspicuously confluent, prominulous beneath; racemes terminal or axillary, erect, to 23 cm. long, about 2.5 cm. wide, many-flowered, the flowers pseudo-secund; peduncles slender, 1.5—6.5 cm. long, densely puberulent; rachis slender, densely puberulent; pedicels to 1 mm. long, densely puberulent; calyx about 5 mm. long and 4 mm. wide, puberulent; corolla-tube 15—17 mm. long, the limb about 10 mm. wide; fruit drupaceous, red when fresh.

The type of this species was collected by my good friend and colleague, Dom Bento José Pickel (no. 1501) at Caruarú, Tapera, Pernambuco, Brazil, in January, 1928, and is deposited in the herbarium of the Botanisches Museum at Berlin. The holotype has more ovate and elongate leaf-blades with shorter pubescence beneath than are seen on the other specimens. The species is found in wet high places on uncultivated ground in Parahyba and along roadsides and in open fields in Pernambuco. It is called "mama de cabra" and "salgueiro", and has been collected in anthesis in April and May, and in fruit in May and August.

Pickel, in the work listed above, refers to a fig. 134 in Piso, ed. 1 "segunda", but this reference is probably actually to book 3, chapter 18, and page 133 of Piso's work.

In all, 9 herbarium specimens, including the type, and 5 mounted photographs have been examined.

Citations: BRAZIL: Parahyba: Coelho de Moraes 839 (N, Z). Pernambuco: Pickel 1501 (B--type, E--photo of type, N--isotype, N--photo of type, S--photo of type, W--photo of type, Z--photo of type), 1941 (B, I, N), 3921 (I, N).

CITHAREXYLUM POEPPIGII Walp., Repert. 4: 76 [as "Citharexylon"].

1845; Schau. in A. DC., Prodr. 11: 612. 1847.

Synonymy: Citharexylum glandulosum Poepp. ex Moldenke, Prelim. Alph. List Invalid Names 16, in syn. 1940 [not C. glandulosum Urb. & Ekm., 1929].

Literature: Walp., Repert. 4: 76. 1845; Schau. in A. DC., Prodr. 11: 612. 1847; Schau. in Mart., Fl. Bras. 9: 270. 1851; Jacks., Ind. Kew. 1: 550. 1893; Moldenke, Alph. List Common Names 22 & 23. 1939; Moldenke, Geogr. Distrib. Avicenn. 22 & 25. 1939; Moldenke, Prelim. Alph. List Invalid Names 16. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 33, 34, 36, & 88. 1942; Moldenke, Alph. List Invalid Names 14. 1942; Moldenke, Phytologia 2: 97. 1944; Moldenke, Castanea 10: 41. 1945; Moldenke, Alph. List Cit. 1: 117, 134, & 268. 1946; Moldenke, Phytologia 2: 384. 1947; Moldenke, Alph. List Invalid Names Suppl. 1: 5. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 76. 1948; Moldenke, Alph. List Cit. 2: 331, 348, 448, & 581 (1948), 3: 731, 823, 824, & 915 (1949), and 4: 1070, 1080, & 1198. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 59, 69, 72, 76, & 179. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 4. 1949; Moldenke, Mutisia 6: 4. 1952; Moldenke, Phytologia 4: 451. 1953; Uribe Uribe, Mutisia 25: 25. 1956.

Shrub or small wide-spreading tree, to 18 m. tall; trunk to 30 cm. in diameter and 1.1 m. in circumference, whitish, with basal ridges; bark ochraceous-whitish, more or less rough and scaly; wood light-ochraceous; branchlets and twigs rather stout, medullose or hollow, light-brown, densely but minutely puberulent, obsolete or acutely tetragonal or 5-angled; nodes annulate, swollen; principal internodes elongate, 5.5--8 cm. long; leaf-scars large, borne on stout closely appressed sterigmata to 5 mm. long, overlapping the apex of the sterigma; leaves decussate-opposite or ternate, sometimes approximate on vigorous shoots; petioles very stout, 2.9--4 cm. long, minutely puberulent or glabrous, amplate and more or less peltate at the base; leaf-blades large, chartaceous or subcoriaceous, light- or dark-green above, somewhat lighter beneath, broadly elliptic, 16.5--23.5 cm. long, 10--12.3 cm. wide, acute at the apex, entire, broadly rounded or gradually acute at the base and prolonged into the petiole, bearing a pair of very large, conspicuous, oblong or pelviform glands about 5 mm. long and 1.5 mm. wide (usually concave above when dry) on the prolongation, glabrate above (ex-

cept for the puberulent midrib), densely very short-pubescent beneath with soft, appressed, ferruginous, tomentellous hairs, not lepidote; midrib stout, rather sharply and narrowly prominent above, very broad and prominent beneath; secondaries slender, 9-14 pairs, ascending, often not very arcuate, more or less anastomosing near the margins, very prominent beneath, very slightly prominent above; vein and veinlet reticulation very abundant, slightly prominent on both surfaces; racemes axillary and terminal, often 2 from the same axil, subequal, often compound and paniculate with 1 or 2 short branches at the apex of the peduncle, usually densely many-flowered, erect, lax, divergent or subnutant, 4-16 cm. long, 1-2 cm. wide in anthesis, not at all secund; peduncle and rachis stoutish, light-brown, very densely puberulent, the former 0.5-2.6 cm. long and subterete; pedicels very slender, to 1 mm. long, densely brown-puberulent; bracts not seen, perhaps none; bractlets few, linear, to 6 mm. long, puberulent; prophylla linear-setaceous, minute, to 1 mm. long, puberulent; flowers fragrant, sessile or subsessile; calyx membranaceous, pale-green, obconic, 3-4 mm. long and wide, not venose, very lightly puberulent, its teeth ovate and obtuse, often exiguous and irregular, sometimes lobe-like; corolla infundibular or hypocrateriform, white, about 18 mm. long when expanded, glabrous, its tube pale-green or greenish-white, cylindric, the limb white, the lobes elliptic, obtuse or rounded at the apex; stamens 5; filaments very short, inserted in the throat of the corolla-tube; style slightly surpassing the calyx; fruit drupeaceous, red when fresh.

The type of this outstanding species was collected by Eduard Friedrich Poeppig (no. 2910) in woods at Ega, along the Amazon River, Amazonas, Brazil, in January of 1831 and in 1832. The collector notes: "Arbor praealta, speciosa. Etiam in prov. Maynas crescit ubi audit 'Mullu-caspi', i.e., hispan. 'Palo de Chaquiras' (chaquiras = glascoralle) verasimiliter ob fructas rubras. C. ramis tetragonis; foliis late ellipticis, utrinque acutis, subtus pubescentibus; glandula petiolum apice utrinque terminante excavata; spicis terminalibus divaricatis paniculatis; calyceque obtuse quinquentato puberulis; corollae pentandria fauce villosa!" Walpers, in the reference listed above, points out its close relationship with C. rugendasii Cham. [= C. mocinni D. Don] of Mexico. The 1831 sheets of the type collection are inscribed "Citharexylum glandulosum Poepp.", and the Pará collection of Poeppig has the leaves rounded and subcucullate at the apex.

The finest representation of the species is in the Vienna herbarium. It has been confused with and specimens misidentified as C. macrophyllum Poir., C. molle H.B.K., C. pilosum Jacq., and C. villosum Jacq. Common names are "galhos novos 8cos", "mullu-caspi", "palo de chaquiras", and "tinto". It has been found in dense humid forests, on riverbanks, and in the mata da serra formation, at altitudes of 100 to 450 meters, blooming from January to May, July, and October, and in fruit in November. The Poeppig 2119 cited by Schauer is herein regarded as var. margaritaceum

Poepp. & Moldenke. In all, 52 herbarium specimens, including the type collections of all the names involved, and 3 mounted photographs have been examined.

Citations: COLOMBIA: Meta: Jaramillo, Mesa, Idrobo, & Fernández 303 (W—1900434), 343 (W—1900440); Philipson, Idrobo, & Fernández 1380 (Bm, N, W—2026125). Valle del Cauca: Cuatrecasas 15949 (N), 17606 (N). VENEZUELA: Aragua: Aristeguieta 2787 (N). ECUADOR: Napo—Pastaza: Asplund 9001 (S), 10227 (S); Mexia 7158 (N, W—1592025). Oriente: Heinrichs 408 (B, B, N). PERU: Loreto: J. M. Schunke 365 (Ca—659792, F—997655, N). BRAZIL: Amazonas: Black 48-2491 (N, N); Cardona 1421 (W—1906083); Murça Pires 528 (Be—28486, Be—28487, N, N, N); Poeppig 2910 (B—isotype, B—isotype, B—isotype, Cb—isotype, Dc—isotype, F—686442—isotype, K—photo of isotype, L—isotype, L—isotype, N—isotype, N—isotype, N—photo of isotype, P—isotype, S—isotype, V—111251—isotype, V—285055—isotype, V—isotype, V—isotype, X—isotype, Z—photo of isotype). Pará: Black 50-9081 (N); Murça Pires 3175 (Cb, N), 3209 (N, Z); Poeppig s.n. (B, P, P, P).

CITHAREXYLUM POEPPIGII var. MARGARITACEUM Poepp. & Moldenke ex Moldenke in Fedde, Repert. 37: 233. 1934.

Synonymy: Citharexylum margaritaceum Poepp. ex Moldenke, Prelim. Alph. List Invalid Names 17, in syn. 1940. Citharexylum paniculatum Poepp. ex Moldenke, Prelim. Alph. List Invalid Names 17, in syn. 1940 [not C. paniculatum Poir., 1823, nor C. paniculatum Gaertn. f., 1909, nor Citharexylum paniculatum Gaertn., 1788]. Citharexylum poeppigii var. margaritense Poepp. & Moldenke ex Moldenke, Alph. List Cit. 2: 616, sphalm. 1948.

Literature: Moldenke in Fedde, Repert. 37: 233. 1934; Moldenke, Geogr. Distrib. Avicenn. 22, 23, 25, & 28. 1939; Moldenke, Prelim. Alph. List Invalid Names 17. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 33, 34, 36, 40, & 88. 1942; Moldenke, Alph. List Invalid Names 14—15. 1942; Moldenke, Castanea 10: 41. 1945; Moldenke, Alph. List Cit. 1: 37, 134, 169, 204, & 268. 1946; Moldenke, Phytologia 2: 385. 1947; Moldenke, Alph. List Cit. 2: 327, 331, 339, 429, 445—447, 616, & 624 (1948), 3: 667, 687, & 823 (1949), and 4: 988, 1016, & 1079. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 59, 69, 72, 76, 96, & 179. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 4. 1949; Moldenke, Phytologia 3: 287. 1950.

This variety differs from the typical form of the species in having its leaf-blades ovate to ovate-elliptic or rarely oblong, usually 21—25 (rarely 10—13) cm. long and 7.5—8.8 (rarely 4.5 to 5.5) cm. wide, densely puberulent and lepidote beneath, the secondaries 12—15 pairs, the petioles 1.2—2.5 cm. long, the racemes to 45 cm. long, the peduncles to 7 cm. long, and the corollas only about 7 mm. long when expanded. It is said to be a large or small tree, 6—15 m. tall, the trunk 10 cm. in diameter at breast height, the inflorescences pendulous, the flowers odorous, and the corollas white.

The type of this variety was collected by Eduard Friedrich Poeppig (no. 2219) in woods along the banks of the Rio Huallaga at Yurimaguas, Maynas, Loreto, Peru, in December, 1830, and is deposited in the herbarium of the Naturhistorisches Museum at Vienna. Poeppig describes it as follows: "C. ramis obtusangulis; foliis ovato-ellipticis oblongisve, acutis, subtus lepidotis, pubescentibus; spicis axillaribus ternis, erectis, calycibusque quinquedentatis tomentosis; floribus erectis; corollis quinquefidis pentandris fauce villosis." It has been collected at 200 meters altitude, blooming in January, February, April, and November. It is called "racedera", and Little states that it is used in medicine in the treatment of fevers and is propagated from cuttings "as the name, from racer, suggests". The material is all surprisingly uniform with the exception of the Bolivian specimens which have the leaf-blades only 10--13 cm. long and 4.5--5.5 cm. wide. Cuatrecasas 15949a is a mixture with the typical C. poeppigii with very large flowers. In all, 43 herbarium specimens, including the types of all the names involved, and 8 mounted photographs have been examined.

Citations: COLOMBIA: Valle del Cauca: Cuatrecasas 15949a (N). ECUADOR: Esmeraldas: E. L. Little 6283 [U. S. Forest Serv. 98379] (W--1877608). Napo-Pastaza: Fagerlind & Wibom 2318 (S), 2410 (S), 2410-II (S). Oriente: Heinrichs 408 (Cb, Mu). Province undetermined: Benoist 4788 [Verastorres] (P). PERU: Loreto: Klug 3943 (Ca--710166, E--1110970, F--853262, Gg--247908, I, N, S); J. G. Kuhlmann s.n. [Herb. Rio de Jan. 22534] (N); Poeppig 2119 [Yurimaguas, Maynas, 1830] (B--photo of type, Cb--isotype, K--photo of type, N--isotype, N--photo of type, P--isotype, S--photo of type, V--type, V--isotype, V--isotype, X--isotype, Z--photo of type); Tessmann 3491 (B, Cb, F--686483, Hb, N, S), 5020 (B, S). BRAZIL: Acre Territory: J. G. Kuhlmann s.n. [Herb. Rio de Jan. 22535] (N). Amazonas: Ducke s.n. [Herb. Rio de Jan. 35665] (N); Poeppig 2119 [prope Egam, 1834; Macbride photos 7876] (B, B--photo, Dc, F--645725--photo, F--686436, Kr--photo, L, N--photo, V--105848, V).

CITHAREXYLUM PSILACANTHUM Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (3): 207. 1863.

Literature: Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (3): 207. 1863; Jacks., Ind. Kew. 1: 550. 1893; Moldenke, Geogr. Distrib. Avicenn. 41. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 75 & 88 (1942) and [ed. 2], 166 & 179. 1949.

Stems terete, much branched; branches and branchlets almost horizontally spreading, densely pubescent, armed with long slender spines in the axils; leaves opposite; petioles short; leaf-blades ovate, acute and rather obtusely mucronate at the apex, entire, glabrous except for the appressed-pilose midrib beneath; inflorescence axillary; peduncles short, 1- or rarely 2-flowered, not equaling the subtending leaves when in flower; calyx shortly and unequally 5-dentate, the teeth rather obtuse; corolla tubular-

infundibular, 3 times as long as the calyx, 4- or 5-toothed; stamens 4, didynamous, with a fifth rudimentary one minute, linear, and placed below the others; style scarcely thickened at the apex; ovary 4-ovulate.

Nothing is known of this species except the original description by Turczaninow, in which it is stated that the type specimen is without a label. Therefore, the collector, number, date, and locality of collection are all unknown ("ob schedulam delapsam patria mihi ignota"). It is to be hoped that the type may someday soon be made available for examination so that the status of this plant can be determined.

CITHAREXYLUM PTEROCLADUM Donn. Sm., Bot. Gaz. 33: 255--256. 1902.

Synonymy: Citharexylum pterialadum D. Sm., in herb. Citharexylum ptericladum D. Sm., in herb.

Literature: J. D. Sm., Bot. Gaz. 33: 255--256. 1902; Prain, Ind. Kew. Suppl. 3: 43. 1908; Moldenke, Geogr. Distrib. Avicenn. 13 & 15. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16, 19, 20, & 88. 1942; Moldenke, Alph. List Cit. 1: 37, 218, & 307 (1946), 2: 334, 345, 349, 419, 437, 542, 543, 594, & 632 (1948), 3: 714, 902, & 940 (1949), and 4: 1013, 1022, 1026, 1031, & 1057. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 29, 35, 36, & 179. 1949; Matuda, Am. Midl. Nat. 44: 576. 1950.

Shrub or handsome spreading tree, to 30 m. tall; trunk to 90 cm. in diameter at breast height; crown loosely branched, open; bark brown, rough, shed in small scales; branches and branchlets massive, very stout and robust, very sharply tetragonal, square in cross-section, hollow, usually very conspicuously 4-winged, brown, glabrous; twigs slender or stoutish, acutely tetragonal, brown, more or less 4-winged or -margined, square in cross-section, glabrous; nodes conspicuously annulate; principal internodes elongate, 1.7--8 cm. long; leaf-scars borne on large, thick, conspicuous, ascending or divergent sterigmata to 7 mm. long and 5 mm. wide, very broad, wider than the body of the sterigma; leaves decussate-opposite; petioles mostly slender, 1.5--4.5 cm. long, amplate at the base, glabrous; leaf-blades chartaceous or membranous, uniformly bright-green on both surfaces, elliptic, 5--17.5 cm. long, 2.3--9 cm. wide, acute or bluntly short-acuminate at the apex, entire, acute at the base and slightly prolonged into the petiole, bearing a pair of elongated glands on the prolongation beneath, glabrous or subglabrate on both surfaces; midrib slender, prominent but flattened beneath; secondaries very slender, delicate, 5--7 pairs, usually hardly at all prominent on either surface or very slightly prominent on older leaves, arcuate-ascending; vein and veinlet reticulation very delicate, rather sparse, mostly rather obscure, prominent only on older leaves; racemes axillary and terminal, greatly elongate, 17--30 cm. long or longer, 1--2 cm. wide during anthesis, mostly simple, nutant, the terminal ones often compound with a pair of branches at the top of the peduncle and as long as the central one, rather loosely

many-flowered; peduncles and rachis slender, brown, glabrate or very sparsely and minutely puberulent, the former 2.5--6.5 cm. long; pedicels filiform, 1--3 mm. long, glabrate; bracts absent; bractlets linear, few, to 5 mm. long; prophylla linear-setaceous, 1--1.7 mm. long; calyx tubular-campanulate, glabrous except for the pubescent rim, the rim truncate, apiculate at the termination of the 5 ribs; corolla hypocrateriform, varying from light-lilac or lilac to blue, purple, or rose, sometimes mauve or light-violet, sometimes described as pale-lavender with deeper purple streaks on the lower lobes or with 3 dark-violet stripes on the 2 upper or outer lobes, its tube about twice as long as the calyx, about 6 mm. in length, externally glabrous, cano-villous in the throat, the lobes obovate, somewhat unequal, about 4 mm. long, reticulate-venose, ciliolate-margined, about 2 mm. wide at the base and 3 mm. wide at the apex; stamens 4, inserted slightly below the mouth of the corolla-tube, subincluded; fruit orange when ripe.

The type of this species was collected by Hans von Türckheim (no. 295 -- or 7922 according to Smith's re-numbering) at Cubilquitz, at an altitude of 350 meters, Alta Verapaz, Guatemala, in March [not February, as stated on the Smith labels], 1901, and is deposited in the United States National Herbarium at Washington. Its broadly winged branches and branchlets, square stems, elongate racemes, and mostly membranous leaf-blades distinguish this species very well. Its closest relative is the common C. affine D. Don, with which it has sometimes been confused in herbaria. It has also been misidentified as C. donnell-smithii Greenm. by herbarium workers.

Some sheets of Galeotti 1764 bear the number "764" -- the "1" probably having been omitted through error in copying when the labels were prepared. Wood of Skutch 2021 is preserved in the wood collection of the Chicago Natural History Museum.

The species has been collected on ridges, in forests, in cornfields and coffee plantations, on hilltops, and in chaparral by the sea, at altitudes of from 20 to 1560 meters, blooming from March to May and in November and December, fruiting in May and June. Hinton reports that the cortex of the branches and twigs is often eaten by a boring insect, making a beautifully artistic pattern. He describes his no. 15852 as "an herb 1.5 m. tall." His no. 13739 is the fruit from the same tree of which no. 13738 is flowering material. In all, 68 herbarium specimens, including the types of all the names involved, and 5 mounted photographs have been examined.

Citations: MEXICO: Chiapas: Matuda 2522 (F--1003306, Mh, Mi, Mi, N, N, N), 18484 (N). Guerrero: Hinton 14082 (N, N); Langlassé 927 (Cb, Cb, Cb, G, K, N, W--386282). Michoacán: Hinton 12631 (N, N), 13738 (Au, N, N, N, N), 13739 (Au, N, N, N), 15852 (W--1978317); M. E. Jones 152 (W--236863). Oaxaca: Galeotti 764 bis (F--195946), 1764, in part (Ca--168057, Cb, Cb, F--

195945, G, N, P, P, P, P, V, W--572964). Vera Cruz: Galeotti 1764, in part (L). GUATEMALA: Alta Verapaz: Steiermark 45695 (N, N); Türckheim 7922 [II.295] (A--isotype, B--isotype, B--isotype, B--photo of type, C--isotype, E--119059--isotype, G--isotype, K--isotype, K--isotype, K--photo of type, Me--isotype, Mu--3971--isotype, N--photo of type, S--photo of type, W--398402--isotype, W--1323218--isotype, W--1323219--type, Z--photo of type). Amatitlan: Bequaert 30 (F--699381, G, G, N). Quezaltenango: Skutch 2021 (F--933479, N, N). BRITISH HONDURAS: Schipp S.627 (F--733672, N).

CITHAREXYLUM PUNCTATUM Greenm., Field Columb. Mus. Publ. Bot. 2: 189. 1907.

Synonymy: Citharexylum punctatum Greenm., Field Columb. Mus. Publ. Bot. 2: 189, sphalm. 1907.

Literature: Greenm., Field Columb. Mus. Publ. Bot. 2: 189. 1907; Prain, Ind. Kew. Suppl. 4: 49. 1913; Herzog, Meded. Rijks Herb. Leid. 29: 46. 1916; Moldenke, Geogr. Distrib. Avicenn. 23 & 28. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 34, 40, & 88. 1942; Moldenke, Lilloa 8: 415. 1942; Moldenke, Alph. List Cit. 1: 29, 301, 304, & 325 (1946), 2: 331, 420, 436, 447, 535, & 628 (1948), 3: 705, 883, 884, & 968 (1949), and 4: 1010, 1024, 1052, 1057, 1112, & 1120. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 72, 96, & 179. 1949.

Dwarf gnarled shrub, to 2 m. tall; branches and branchlets medium-slender, obtusely tetragonal or subterete, light-brown, woody, roughened, obscurely puberulent or subglabrate; twigs slender, numerous, minutely brownish-puberulent, more or less tetragonal, brown; nodes not noticeably annulate; principal internodes abbreviated, 0.6--2 cm. long; leaf-scars borne on relatively stout, corky, ascending sterigmata 1--3 mm. long; leaves numerous, decussate-opposite; petioles slender, 2--4 mm. long or subobsolete, glabrous; leaf-blades subcoriaceous, uniformly bright-green on both surfaces, shiny on both surfaces or only beneath, elliptic, 7--25 mm. long, 5--13 mm. wide, mostly acute at the apex, sparsely serrate with antrorse teeth toward the apex or subentire, mostly somewhat revolute along the margins, usually with 1 or 2 small glandular disks near the base beneath, glabrous but densely punctate on both surfaces, especially above where the punctae are deeply impressed; midrib slender, prominent beneath; secondaries 3 or 4 pairs, short, indiscernible above, very slightly prominent beneath; vein and veinlet reticulation indiscernible above, obscure or indiscernible beneath; racemes axillary and terminal, 1--6-flowered, the axillary ones usually 1- or 2-flowered and opposite; peduncles and rachis obsolete or very short, minutely puberulent; pedicels obsolete or to 1 mm. long, minutely puberulent; bracts and bractlets none; prophylla setaceous, minute; flowers 7--8 mm. long during anthesis; calyx tubular-campanulate, 3--4 mm. long, 5-angled in cross-section, glabrous except for the ciliolate rim, the rim sinuately 5-toothed; corolla subhypocrateriform, white or yellowish-white, 5--6 mm. long, externally glabrous, the tube pub-

escent in the upper third within and at the throat, the lobes oblong, about $1/3$ as long as the tube; stamens 5, equal, included; filaments adnate to the corolla-tube; style glabrous; ovary glabrous; fruiting-pedicels incrassate, to 2 mm. long; fruiting-calyx indurated, cupuliform, to 4 mm. long and 6 mm. wide, glabrous, shiny, its rim deeply 5-lobed, the lobes acute at the apex; fruit drupaceous, oblong or suboblong, 10--12 mm. long, about 10 mm. wide, fleshy, glabrous, very shiny, black or purplish black when dry, 2-sulcate in drying; pyrenes oblong, about 7 mm. long, deeply concave on the ventral or inner surface, conspicuously corrugated or somewhat irregularly furrowed longitudinally on the dorsal surface.

The type of this very distinct species was collected by Miguel Bang (no. 1917) somewhere in Bolivia and is deposited in the Gray Herbarium at Harvard University. No locality or date of collection are given on the label of the type collection. The species has been found by collectors in thickets in the subalpine zone and in rocky crevices. Brooke found it "on lower and steeper slopes covered with forest, the rest pasture, cultivated at intervals, with good flora of flowering plants and ferns, from 12,000 feet up in constant cloud or rain in summer, lifting occasionally." It has been found at altitudes of 3350 to 3830 meters, blooming in January, April, May, and July, and fruiting in January. The deeply impressed punctae, especially on the upper surface of the leaf-blades, are quite characteristic; still it has been confused in herbaria with C. ilicifolium H.B.K., to which it is obviously related, but from which it differs in its smaller, entirely glabrous, punctate, non-spinose leaves. It has also been confused with Citharexylon cyanocarpum Hook. & Arn. [= Rhaphithamnus spinosus (A. L. Juss.) Moldenke]. In all, 71 herbarium specimens, including the types of all the names involved, and 3 mounted photographs have been examined.

Citations: PERU: Puno: Weberbauer 935 (B, Cb). BOLIVIA: Cochabamba: Brooke 5986 (N); Cardenas 4659 (W--2027194); Kuntze s.n. [Tunari] (N); Steinbach 9798 (F--634443, N). El Beni: Herzog 2273 (B, Cb, Le, N, S, V--1584). La Paz: Mandon 532 (B, Em, Cb, F--686431, G, K, L, N, N, P, P, P, S, V--166939, V, X); H. H. Rusby 30 (J, N), 2058 (B, C, C, D, E--119107, Ed, G, L, Pa, V--982, X); Troll 1381 (B, B); O. E. White 183 (G, J, N, W--1232163). Department undetermined: M. Bang 1917 (B--isotype, B--photo of type, Em--isotype, C--isotype, C--isotype, Cb--isotype, D--isotype, E--119106--isotype, Ed--isotype, F--77895--isotype, F--159086--isotype, G--type, K--isotype, K--photo of type, L--isotype, Mi--isotype, Mu--1844--isotype, N--photo of type, Pa--isotype, S--photo of type, V--1094--isotype, Vu--isotype, W--325793--isotype, W--1323211--isotype, X--isotype, Z--photo of type).